School Shop

vol. II no. 10

June, 1943

PIT Looks to Vocational Education
by Lawrence W. Prakken

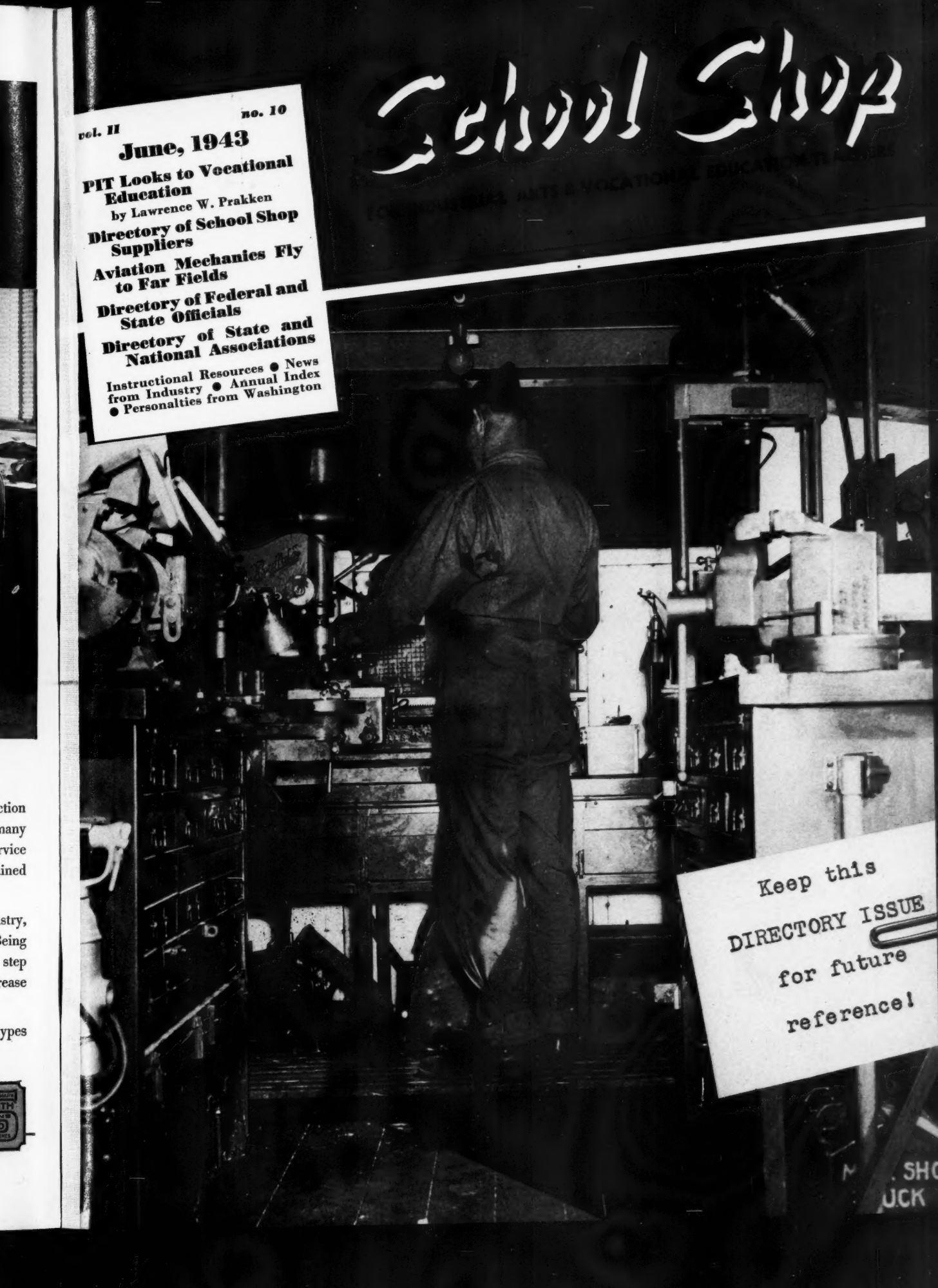
Directory of School Shop Suppliers

Aviation Mechanics Fly to Far Fields

Directory of Federal and State Officials

Directory of State and National Associations

Instructional Resources ● News from Industry ● Annual Index ● Personalties from Washington



Keep this DIRECTORY ISSUE for future reference!

FOR LOWER UNIT COST ON SMALL PARTS PRODUCTION

Urgent war needs have stepped up the demand for small parts to such an unprecedented degree that large turret lathes are being tied up when they are sorely needed for heavier work. The Logan No. 830 Hand Screw Machine was developed to break this bottleneck. Engineered and built to exacting specifications, it is capable of accurate, continuous production. With a capacity of 5/8-inch round bar stock, it turns out parts with the same speed and precision as that of the larger machines. And, because its cost is low by comparison, unit production costs are further lowered.

Logan

A NAME TO REMEMBER WHEN YOU THINK OF LATHES

SPECIFICATIONS

1 Swing Over Bed, 10"

2 Bed Length, 43⅛"

3 Spindle Hole, 25/32" Capacity, 5/8"

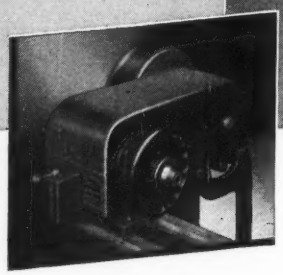
4 Preloaded Precision Ball Bearing Spindle Mounting

5 12 Spindle Speeds, 30 to 1450 R.P.M.

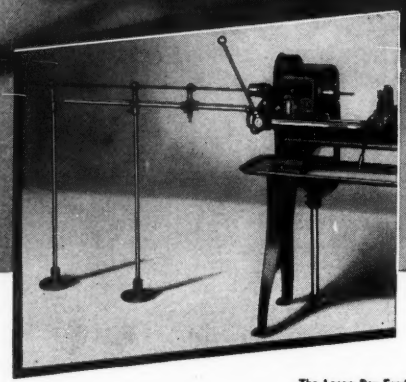
6 Cross Slide Stroke, 3¼"

7 Six Position, Automatic Indexing Turret

8 Stroke of Turret, 4¼"



The Logan Speed Collet Chuck is made to fit the No. 830 Turret Lathe, or other lathes with a 1 ½" x 8 thread spindle nose. Capacity: 5/8" round work. Positive, accurate squeeze grip operated by hand wheel. No keys or wrenches.



The Logan Bar Feed is offered as an accessory for the No. 830 Hand Screw Machine. Maximum capacity: 5/8" round bar stock. Maximum stroke: 2 inches. Patented safety cam action operates bar feed and locks collet at one operation

NO. 830 LOGAN 5/8" CAPACITY HAND SCREW MACHINE

LOGAN ENGINEERING COMPANY • Chicago, Illinois

A Very Pleasant Vacation to You!

With this issue SCHOOL SHOP closes the school year. If you change your address during the summer, will you please notify us early so that you won't miss your September number.

Thanks!

EDITORIAL ADVISORY BOARD

M. Reed Bass, Director, Ranken School of Mechanical Trades, St. Louis, Missouri

Earl Bedell, Director of Vocational Education, Public Schools, Detroit, Michigan

Elmer W. Christy, Director of Industrial Arts, Public Schools, Cincinnati, Ohio

George B. Cox, Professor of Industrial Education, Oregon State College, Corvallis

Roy G. Fales, Supervisor of Industrial Arts, State Department of Education, Albany, New York

George Fern, Director, State Board for Control of Vocational Education, Lansing, Michigan

R. A. Hinderman, Director Department of Research and Vocational Education, Public Schools, Denver, Colorado

V. P. McKinley, Professor of Trade and Industrial Education, University of Alabama, University

George E. Myers, Professor Emeritus of Vocational Education, University of Michigan, Ann Arbor

Louis V. Newkirk, Director of Industrial Arts, Public Schools Chicago, Illinois

Irvin S. Noall, Supervisor of Industrial Arts and Occupational Education, Public Schools, Salt Lake City, Utah

Floyd W. Reeves, Professor of Administration, Chicago University

John J. Seidel, State Director of Vocational Education, Baltimore, Md.

Leslie G. Stier, Principal, Frank Wiggins Trade School, Los Angeles, California

F. Theodore Struck, Head, Department of Industrial Education, Pennsylvania State College, State College, Pennsylvania

Editor
Lawrence W. Prakken

Consulting Editors
Marshal L. Byrn and Thomas Diamond

Business Manager
John M. Trytten

School Shop

FOR INDUSTRIAL ARTS & VOCATIONAL EDUCATION TEACHERS

CONTENTS

June, 1943
Vol. II, No. 10

PIT Looks to Vocational Education. Lawrence W. Prakken 3
The vocational teacher's part in pre-induction training.

A Shop Program for the Small School. Vernon E. Duck 6
Course-of-study plan for a new shop with limited equipment.

Suppliers Directory 7
Complete authoritative guide to sources of equipment and supplies.

News 16
What's doing in the field of industrial education.

Shop Training for Victory: Aviation Mechanics Fly to Far Fields 17
The story in pictures of the aviation program at Western Michigan College of Education.

Directory of Federal and State Officials 20
Industrial arts and vocational officials with titles and addresses.

Directory of National and State Associations 23
Organizations in the industrial education field.

News from Industry 24
New products, new equipment, industrial advancements.

Strictly Personal 25
About your fellow teachers.

Instructional Resources 26
Listings in easy form for clipping, pasting, and filing.

High Preference Ratings Given to Shop Teachers 29
Latest information on new, more liberal priority ratings for school shop purchases.

Index to Volume Two 30

From Washington. William Paca 32

Index to Advertisers 32

School Shop is published monthly, September through June, at Ann Arbor, Michigan. Manuscripts are paid for at regular space rates and should be addressed to the Editor, School Shop, Box 100, Ann Arbor, Michigan. Subscription rates to libraries and institutions, $2.00 a year; Foreign and Canadian, $3.00 a year. 25 cents a copy. Printed in the U. S. A.

Copyright, 1943, by Lawrence W. Prakken.

Advertising Representatives: Eastern—Macintyre & Simpson, Room 1837, 101 Park Ave., New York City, Lexington 2-3783; Mid-West—Macintyre & Simpson, 75 East Wacker Drive, Chicago, Central 1715, and 1900 Euclid Avenue, Cleveland, Ohio, Cherry 1501.

MEN TRAINED WITH
SKILSAW TOOLS
ARE PREFERRED in INDUSTRY
...because industry prefers
SKILSAW TOOLS!
SKILSAW DISC SANDERS—Speed up all grinding, filing, sanding and polishing on flat or curved surfaces of all materials. 6 MODELS.
It's just good sense to train new workers with SKILSAW TOOLS . . . the tools they'll find preferred in aircraft, tank and war plants everywhere! That way your students will make the shift to real production *easier* . . . reach peak output *quicker*. And they will learn faster . . . do perfect work sooner with these tools that are proved in industry itself.
SKILSAW TOOLS are lighter, more compact, more powerful. They're perfectly balanced for easier handling, easier learning. Ask your dealer to demonstrate SKILSAW TOOLS *today!*
SEND FOR THIS FREE CATALOG! It illustrates every tool in the SKILSAW line. Then ask your dealer to demonstrate them on the jobs you teach.
SKILSAW
SKILSAW, INC., 5029A Elston Ave., Chicago, Ill.
New York • Boston • Buffalo • Philadelphia • Cleveland • Detroit
Indianapolis • St. Louis • Kansas City • Atlanta • New Orleans
Dallas • Los Angeles • Oakland • Portland • Seattle • Toronto, Canada
SKILSAW BELT SANDERS—For all "final-finishing" on flat surfaces of wood, metals, compositions. Belt widths: 2½, 3 and 4½ inches. 4 MODELS.
SKILSAW DRILLS—Light, compact, powerful for faster, better drilling on every job from lightest lead holes to heaviest reaming. 23 MODELS.
SKILSAW PORTABLE ELECTRIC TOOLS
★ MAKE AMERICA'S HANDS MORE PRODUCTIVE ★

Post-induction training at Fort Benning, Georgia, for which pre-induction training can provide the groundwork. Here 1st Lt. Robert A. Titlow is teaching clutch operation and maintenance to members of a class in the Infantry Motor Maintenance School. (Photo by U. S. Army Signal Corps.)

PIT Looks to Vocational Education

BY *Lawrence W. Prakken*
EDITOR OF SCHOOL SHOP

WHEN war came to these United States, school shops already had an enviable service record. For a year and a half they had been training workers for war industry at a prodigious rate. Pearl Harbor accelerated a program that still keeps many shop facilities operating 24 hours a day with a record of accomplishment to date of *four million workers* trained for industry as outlined by National Director Layton S. Hawkins in these columns last month.

Last fall the Army came to the schools with a request that it be relieved of some of the burden of training personnel, particularly in the elementary stages. Course outlines were set up in five fields—electricity, machines, shopwork, radio, and automotive mechanics —and the Army requested that the schools offer one of these courses to every boy in the last two years of high school. Although the request came after the first semester was well under way, the schools responded with a will so that today 350,000 boys are taking the now famous PIT courses.

When the pre-induction program was first outlined by the Army, students in technical and trade courses were told to remain where they were as the training they were receiving was what the Army wanted. Experience has shown, however, that the vocational schools and trade and industry departments of general high schools can make a real and more definite contribution to the pre-induction training of students if their work is more closely geared to Army needs. The result of this change in viewpoint is that the Army is going to ask vocational schools and departments and trade schools to modify their programs in keeping with Army needs. This article is a preview of what the Army is likely to ask so that teachers and administrators may more effectively plan their course offerings next semester. It is not official information in that it does not emanate from the War Department directly, but it is based on authoritative reports so that it is reasonable to assume that the material is substantially correct.

What the Army Wants

Rather than follow the previous policy of the Civilian Pre-induction Training Branch of the Army in the original establishment of pre-induction courses, the approach to the vocational field will be to offer broad general needs for types of pre-induction training and let the teachers and administrators work out their own course content, based on teaching personnel and facilities available. No definite course outlines are to be published. It is recognized that the experienced vocational teacher can determine what training should be given to prepare a student for a job in his field of specialization. However, since Army needs differ frequently in some details from those of civilian employment in a trade, teachers will be given a series of publications which will outline Army jobs so that they will know what the prospective inductee must be able to do in order to fill one of these

jobs. The actual methods or materials to be used in teaching will be decided on by each teacher.

Every phase of vocational education for boys can participate in the training program. The Army cares not whether the student is enrolled in all-day unit trade courses, part-time cooperative programs, part-time diversified occupations programs, farm shop, privately controlled trade schools, or any other vocational course. If the teaching personnel and shop facilities are available, action *now* is the Army's attitude. Part-time and evening courses enrolling out-of-school boys and adults likely to be inducted can aid the war effort by including pre-induction training at the vocational level.

Army needs are critical at the present writing in certain occupational fields which have their counterpart in civilian life. While the picture is constantly changing, it is reasonable to assume that present Army shortages should be the basis for emphasis on the part of schools in offering pre-induction courses.

The Army is now experiencing *shortages* in the following trades and occupations as taught in approved vocational schools and departments:

- Automotive mechanics
- Aircraft mechanics
- Communications trades
- Radio mechanics
- Electricity
- Sheetmetal, aviation
- Machine-shop practice
- General industrial, metal trades and building trades (combination of skills)
- General vocational, repair service, mechanics
- Welding, combination
- Watch and clock repairman
- Optical mechanics
- Baking
- Cooking, cafeteria operation

The Army has *no shortage* of persons trained in the following fields at the present time:

- Carpentry, construction
- Welding, arc
- Cabinet making
- Pattern making
- Sheetmetal
- Photography
- Plumbing
- Refrigeration mechanic
- Drafting
- Drafting, mechanical
- Drafting, structural
- Drafting, architectural
- Air conditioning
- Printing

Long-term school training can well begin for many students in preparation for Army specialist jobs, particularly if the student will be able to complete the course prior to induction. Among these jobs are the following:

- Automobile mechanic
- Diesel mechanic
- Electrician, general
- Electric motor repairman
- Radio repairman
- Machinist
- Instrument repairman, nonelectrical
- Airplane and airplane engine mechanic
- Utility repairman, general mechanic (a combination of unit skills in building trades and metal trades)

Short, intensive pre-induction training may be provided for Army specialist jobs in the following:

- Automobile mechanics, basis course
- Lineman, telephone and telegraph
- Radio operator, basic course
- Telephone operator
- Machinist's helper
- Cook
- Blacksmith
- Instrument man, surveying (desirable pre-requisite, drafting)
- Rigger (desirable pre-requisite, building trades training)

Shortages in some fields are more serious than others because of the time factor involved in training. For instance, general electricians require two or three years of training while linemen can be trained in two or three months. Obviously, vocational schools should maintain, or better, increase the enrolment in long-term vocational courses where the occupations will help to meet Army shortages.

The school doing a top-notch job of pre-induction training will utilize every available capacity in order to increase the number of students taking these courses to the point where every prospective inductee in a school will be able to have some preliminary training before departing for active service. Suggestions for increasing capacity include the following:

1. Organize classes during any periods when the shop and equipment are not otherwise in use. Consider the possibility of adding a three-hour shop period to the day vocational program.
2. Schedule additional students in shops where all work stations are not now in use during regular shop periods.
3. Utilize all available laboratories, industrial arts shops, and war production training shops for pre-induction purposes.
4. Organize the occupations into separate instructional units, and employ a teacher to handle each unit. A machine shop organized into instructional units such as bench work, lathe work, milling, shaper and planer work, etc., might have an instructor for each unit provided equipment is adequate to take care of a normal class in each case.
5. Utilize additional rooms within or near the school building for units of training which may readily be segregated from the main shop. This method will require an additional instructor for each shop annex. Automotive electricity is an example of this type of possible separation.
6. Obtain additional equipment and materials through salvage and donations.
7. Operate intensive basic training units of from three to six months' duration such as those listed above.
8. Provide new types of courses which do not require elaborate equipment such as surveying, lineman, etc.
9. Provide cross training for students in building trades and metal trades courses as well as other combinations, as the need for all-round repairmen is great.

Each student should receive a record of pre-induction training which can be taken by him to the induction center as evidence of pre-induction accomplishment. Form 114, "Vocational Training Record Card," provided by the U. S. Office of Education and available from the state director of vocational education in each state is suitable for this purpose.

The Schools' Problem

Financing any program is a perennial problem of school administration. To the question of whether or not pre-induction courses can be reimbursed under the Smith-Hughes and George-Deen acts, the answer is *yes* if the state governing agency approves.

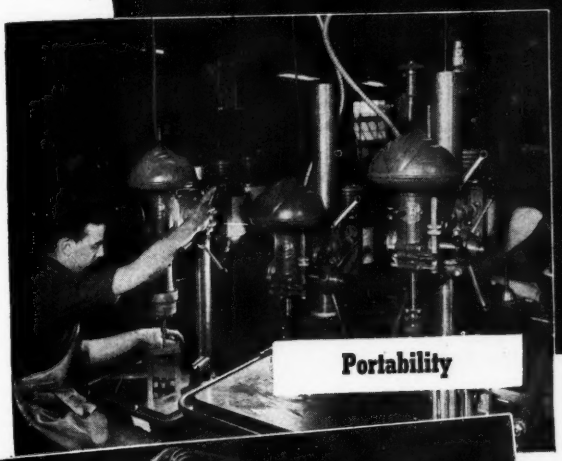
Equipment and space provided for the war production training program may be utilized for pre-induction purposes when it does not interfere with the VTWPW program.

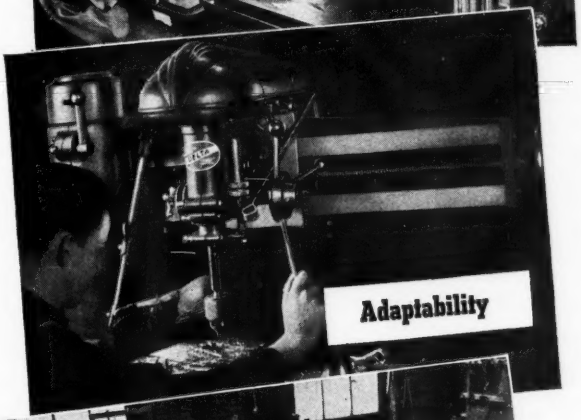
Equipment needs for carrying on pre-induction courses will be met more satisfactorily than in the past now that the WPB has given the schools a blanket priority rating of AA-2X under the CMP-5A regulation just issued. This applies to materials for maintenance, repairs, and operating supplies as well as to additional capital equipment costing less than $100. Copies of the new

(Continued on page 26)

Lessons Learned by Industry

WILL INFLUENCE THE SCHOOL SHOPS OF TOMORROW





An extra spindle in a hurry when it is needed . . . a special machine made quickly and economically from standard parts . . . a compact machine handling a job more efficiently than a heavier, costlier machine . . . these and many other advantages of light machine tools have been learned by thousands of production men in the sweat and strain of meeting war quotas.

School shop men have long known the advantages of Delta Machines. In many hundreds of school shops, from coast to coast, they have incorporated them in their instruction programs. After the war—these low-cost machines will inevitably play a more important part in industrial education.

ARE YOU GETTING "Tooling Tips?"

Delta issues an interesting bulletin that enables industrial educators to keep informed about the latest machine developments in the industrial field. If you wish to receive "Tooling Tips" regularly just fill out and mail the coupon. There is no subscription charge, no obligations of any sort.

DELTA
MILWAUKEE

The Delta Manufacturing Company,
672-F E. Vienna Ave., Milwaukee, Wis.
Please place my name on the mailing list to receive "Tooling Tips" as issued.

Name ..... Position.....

School .....

Address .....

City..... State.....

☐ Also send me copy of latest Delta Catalog.

A Shop Program for the Small School

BY *Vernon E. Duck*

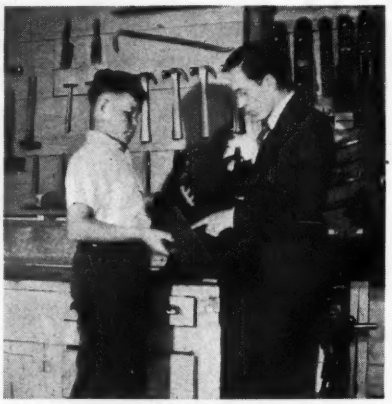
IN MOST small school shops with limited equipment a pronounced lack of initiative is usually noticeable on the part of the students. It is hard to admit but I do not think we are getting the most out of our opportunities. Practically every student seems willing enough to work if only he could plan what to do. I am very much in favor of allowing the student as much freedom in choice of projects as possible, yet he needs something definite that will help him to get started. The requirements must not be heavy enough to become a grind, yet must cover enough material to give the student a general working knowledge.

To meet this situation, I have formulated the following program which seems to operate very successfully.

For each beginning student I set up a definite requirement in woodwork that covers in general the necessary practice manipulations. When that requirement is completed he may continue woodwork and make projects that he will want to take home or he may repair furniture or do other phases of woodwork. If he wishes he may change to another medium. If he desires to change, he first completes the requirements in that medium. He then has the privilege of making anything of his choice in that line of work or changing to yet another medium. If a student is interested in any medium I do not have set up, I immediately plan requirements in that field. This not only gives the student a wider range but will also broaden my own interests as well. The advantage of this method is that it allows the student a choice of interests yet insures the necessary knowledge in each medium he selects. This has tended so far to eliminate many of the botched jobs of the poorer students by giving them the necessary training that might otherwise be overlooked.

Each requirement set up does not attempt to completely cover the field but merely to give the student a start and a working knowledge. It also helps to eliminate giving an undue amount of individual attention to each project made by each student so that the instructor has more time for teaching the fundamentals to the group as a whole. If the student wishes to become proficient in one field, he may continue with his own choice of projects in that field as long as he wishes.

Following are some of the requirements in the most common mediums and a list of some other mediums for which I have set up requirements. The "Record of Achievements" and the "Requirement Sheets" given are exactly as posted in the classroom and used in the classes.



Mr. Duck, the instructor, explaining the difference between the crosscut and rip saw to Howard Conklin, a beginning student.

A student working on an ornamental metal wall lamp to match the one on the bench beside the vise as part of the ornamental metal unit.

Tuney Weatherman putting the final coat of varnish on a hand-painted magazine rack completed in the woodworking unit. The pictures on the side panels were done in oils.

Many small schools with limited equipment are beginning to offer shop courses for the first time. Here is the description of a course-of-study plan tried out in such a situation and found workable. Vernon E. Duck taught at the Eads, Colorado, High School when this course was outlined.

Woodworking Requirements

I. Explain thoroughly each step in sharpening a saw and be able to tell why each step is necessary and to answer any questions that may be asked about a saw.

II. Join, shape, set, and file a crosscut saw.

III. Sharpen properly a plane iron and a wood chisel.

IV. Explain how to sharpen an auger bit and give names of all the parts.

V. Divide a board into a given number of parts by placing rule diagonally.

VI. Using plane and try-square, square a board to ½″ x 5″ x 8″.

VII. Demonstrate how to locate angles of 90° and 45° using only the square and the T-bevel.

VIII. Construct a rabbet joint and explain all tools and procedures used.

IX. Construct a dado joint and explain all tools and processes used.

X. Construct an end lap joint and explain all tools and processes used.

XI. Construct a middle lap joint and explain all tools and processes used.

XII. Construct a dovetail lap joint and explain all tools and processes used.

XIII. Construct a doweled butt joint and explain all tools and processes used.

XIV. Construct a picture frame, making your own moulding and using a miter joint.

XV. Make a blind mortise and tenon joint.

XVI. Be able to explain how three kinds of glue are made, what they are made from and where used. Give all available material you can find including directions for gluing.

XVII. Explain nails and nailing including driving nails, setting below the surface, drawing with a claw hammer, boring in hard wood with a nail, clinching, toenailing.

XVIII. Explain screws and other fasteners thoroughly.

XIX. Collect as many wood samples of different kinds of woods as possible and prepare the surface with edge tools and sandpaper. Finish with stain, filling when necessary, and apply to different samples varnish, wax, shellac, enamel,

(Continued on page 28)

Suppliers Directory

A complete and up-to-date guide to sources of equipment and supplies needed in shop work. Addresses have been given in each case, for your convenience in writing firms listed. All firms listed will be glad to supply you with catalogs and information about their products on request.

Abrasive Paper, Cloth

Abrasive Products, Inc.
South Braintree, Mass.
Armour Sandpaper Works
1355 W. 31 St., Chicago
Behr-Manning Corp.
Troy, N. Y.
Carborundum Company
Niagara Falls, N. Y.
Clover Mfg. Co.
Norwalk, Conn.

Abrasive Stones, Wheels

Abrasive Company
Tacony & Fraley Sts.
Philadelphia, Pa.
Bay State Abrasive Products
Westboro, Mass.
Berea Abrasives
Builders Exchange Bldg.
Cleveland, Ohio
Carborundum Company
Niagara Falls, N. Y.
Chicago Wheel & Mfg. Co.
1101 W. Monroe St.
Chicago, Ill.
Macklin Company
Jackson, Mich.
Midwest Abrasive Co.
1900 E. Milwaukee Ave.
Detroit, Mich.
Millers Falls Co.
Greenfield, Mass.
Norton Company
Worcester, Mass.

Aircraft Tools

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
Blackhawk Mfg. Co.
Milwaukee, Wisc.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Snap-On Tools Corp.
Kenosha, Wisc.
Stanley Tools Div.
New Britain, Conn.

Airplane Models, Supplies

Bennett Hobby Shop
8101 Ingleside Ave.
Chicago, Ill.
Cleveland Model & Supply Co.
4508 Lorain Ave.
Cleveland, Ohio
Comet Model Airplane & Supply Co.
129 W. 29th St.
Chicago, Ill.
Megow's
Howard & Oxford Sts.
Philadelphia, Pa.
Joe Ott Mfg. Co.
415 W. Superior St.
Chicago, Ill.

Automotive Shop Eqpt.

(see also hand tools, mechanics)

Armstrong Brothers Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
Black & Decker Mfg. Co.
Towson, Md.
Blackhawk Mfg. Co.
Milwaukee, Wisc.
Bonney Forge & Tool Wks.
Allentown, Pa.
Champ-Items, Inc.
6191 Maple Ave.
St. Louis, Mo.
K-D Mfg. Co.
Lancaster, Pa.
Millers Falls Co.
Greenfield, Mass.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Snap-On Tools Corp.
Kenosha, Wisc.
Stanley Tools Div.
New Britain, Conn.
Jos. Weidenhoff, Inc.
4352 W. Roosevelt Rd.
Chicago, Ill.
Van Norman Machine Tool Co.
Springfield, Mass.

Benches, Shop

(see shop furniture)

Bits, Auger

Millers Falls Co.
Greenfield, Mass.
Russell Jennings Mfg. Co.
Chester, Conn.
Stanley Tools Div.
New Britain, Conn.

Blow Torches

Clayton & Lambert Mfg. Co.
11111 French Rd.
Detroit, Mich.
Turner Brass Works
Sycamore, Ill.

Blueprinting Eqpt.

(see also drafting eqpt.)

Eugene Dietzgen Co.
2425 Sheffield Ave.
Chicago, Ill.
C. F. Pease Co.
2601 W. Irving Park Rd.
Chicago, Ill.
Peck & Harvey
4327 Addison St.
Chicago, Ill.
Victoray Corp.
Battle Creek, Mich.
Wickes Brothers
Saginaw, Mich.

Bookbinding Eqpt.

G. A. Pratt
4130 Northcote Ave.
East Chicago, Ind.

Books

(see publishers)

Braces, Bit

(see also hand tools, woodworking)

Millers Falls Co.
Greenfield, Mass.
North Bros. Mfg. Co.
Lehigh & American Aves.
Philadelphia, Pa.
Stanley Tools Div.
New Britain, Conn.

Cabinet Hardware

(see hardware supplies)

Calipers

Brown & Sharpe Mfg. Co.
Providence, R. I.
Lufkin Rule Co.
Saginaw, Mich.
Millers Falls Co.
Greenfield, Mass.
L. S. Starrett Co.
Athol, Mass.

Cements

(see glues)

Ceramic Supplies, Eqpt.

American Art Clay Co.
Indianapolis, Ind.
Ceramic Atelier
923 N. LaSalle St.
Chicago, Ill.
Pereny Pottery & Eqpt. Co.
Columbus, Ohio

Chisels, Metalworking

Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio
Henry Disston & Sons
Philadelphia, Pa.
Millers Falls Co.
Greenfield, Mass.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Stanley Tools Div.
New Britain, Conn.
J. H. Williams & Co.
Buffalo, N. Y.

Chisels, Woodworking

(see also hand tools, woodworking)

Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio
Millers Falls Co.
Greenfield, Mass.
Stanley Tools Div.
New Britain, Conn.
Union Hardware Co.
Torrington, Conn.

Clamps, "C"

Adjustable Clamp Co.
417 N. Ashland Ave.
Chicago, Ill.
Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio
Grand Specialties Co.
3101 W. Grand Ave.
Chicago, Ill.
Hartford Clamp Co.
466 Park Ave.
E. Hartford, Conn.
J. H. Williams & Co.
Buffalo, N. Y.

Clamps, Metalworking

Adjustable Clamp Co.
417 N. Ashland Ave.
Chicago, Ill.
Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
E. C. Atkins & Co.
Indianapolis, Ind.
Brown & Sharpe Mfg. Co.
Providence, R. I.
Columbian Vise & Mfg. Co.
9021 Bessemer Ave.
Cleveland, Ohio
Lufkin Rule Co.
Saginaw, Mich.
L. S. Starrett Co.
Athol, Mass.
J. H. Williams & Co.
Buffalo, N. Y.

Clamps, Woodworking

Adjustable Clamp Co.
417 N. Ashland Ave.
Chicago, Ill.
Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio
Hartford Clamp Co.
466 Park Ave.
E. Hartford, Conn.
Oliver Machinery Co.
Grand Rapids, Mich.

Crafts Supplies

American Handicrafts Co.
193 E. Williams St.
New York, N. Y.
American Reedcraft Co.
130 Beekman St.
New York, N. Y.
Brodhead-Garrett Co.
4560 E. 71 St.
Cleveland, Ohio
Craftsman Supply House
Scottsville, N. Y.
William Dixon, Inc.
32 E. Kinney St.
Newark, N. J.
Fellowcrafters, Inc.
64 Stanhope St., Boston
Horton Handicrafts Co.
Hartford, Conn.
J. C. Larson Co.
180 N. Wacker Dr.
Chicago, Ill.
Osborn Brothers
223 W. Jackson Blvd.
Chicago, Ill.
Patterson Brothers
15 Park Row, New York

Cranes

(see hoists)

Cutting Tools, Machine Shop

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Carboloy Co., Inc.
11181 8-Mile Rd.
Detroit, Mich.
Crobalt, Inc.
Ann Arbor, Mich.
Firth-Sterling Steel Co.
McKeesport, Pa.
Jessop Steel Co.
Washington, Pa.
McKenna Metals Co.
Latrobe, Pa.
Tungsten Electric Corp.
Union City, N. J.
Vascoloy-Ramet Corp.
North Chicago, Ill.
Willey's Carbide Tool Co.
1340 W. Vernor Highway
Detroit, Mich.

Dividers

Brown & Sharpe Mfg. Co.
Providence, R. I.
Lufkin Rule Co.
Saginaw, Mich.
Millers Falls Co.
Greenfield, Mass.
Stanley Tools Div.
New Britain, Conn.
L. S. Starrett Co.
Athol, Mass.

Drafting Eqpt.

Eugene Dietzgen Co.
2425 Sheffield Ave.
Chicago, Ill.
Engineering Sales Co.
Sheboygan, Wisc.
A. Lietz Co.
632 Commercial St.
San Francisco, Calif.
C. F. Pease Co.
2601 W. Irving Park Rd.
Chicago, Ill.
Frederick Post Co.
3635 N. Hamlin Ave.
Chicago, Ill.
Rollin Instrument Co.
216 N. Clinton Ave.
Chicago, Ill.
H. E. Smith Company
Adrian, Mich.
V & E Mfg. Co.
Pasadena, Calif.

Drafting Supplies

Arkwright Finishing Co.
Providence, R. I.
Brodhead-Garrett Co.
4560 E. 71 St.
Cleveland, Ohio
Jos. Dixon Crucible Co.
167 Wayne St.
Jersey City, N. J.
Eagle Pencil Co.
703 E. 13 St.
New York, N. Y.

Eberhard Faber Pencil Co.
37 Greenpoint Ave.
Brooklyn, N. Y.
Esterbrook Pen Co.
Camden, N. J.
Higgins Ink Co.
271 Ninth St.
Brooklyn, N. Y.
Koh-I-Noor Pencil Co.
373 Fourth Ave.
New York, N. Y.
Louis Melind Company
362 S. Chicago Ave.
Chicago, Ill.
Frederick Post Co.
3635 N. Hamlin Ave.
Chicago, Ill.
F. Weber Co.
1220 Buttonwood St.
Philadelphia, Pa.

Drill Presses

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Boice-Crane Company
938 Central Ave.
Toledo, Ohio
Buffalo Forge Co.
490 Broadway
Buffalo, N. Y.
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Power King Tool Corp.
Warsaw, Ind.
Walker-Turner Company
600 South Ave.
Plainfield, N. J.
Yates-American Machine Co.
Beloit, Wisc.

Drills, Portable Electric

(see also portable electric tools)

Black & Decker Mfg. Co.
Towson, Md.
Chicago Pneumatic Tool Co.
8 E. 44 St., New York
Chicago Wheel & Mfg. Co.
1101 W. Monroe St.
Chicago, Ill.
Cincinnati Electrical Tool Co.
Cincinnati, Ohio
Jas. Clark Jr. Electric Co.
Louisville, Ky.
Duro Metal Products Co.
2649 N. Kildare Ave.
Chicago, Ill.
Independent Pneumatic Tool Co.
600 W. Jackson Blvd.
Chicago, Ill.
Mall Tool Co.
7740 S. Chicago Ave.
Chicago, Ill.
Millers Falls Co.
Greenfield, Mass.
Precise Products Co.
715 Racine St.
Racine, Wisc.
Skilsaw, Inc.
5029A Elston Ave.
Chicago, Ill.
Snap-On Tools Corp.
Kenosha, Wisc.
Stanley Electric Tool Div.
New Britain, Conn.
U. S. Electric Tool Co.
Cincinnati, Ohio

Drills, Hand

(see also hand tools)

Millers Falls Co.
Greenfield, Mass.
North Bros. Mfg. Co.
Lehigh & American Aves.
Philadelphia, Pa.
Stanley Tools Div.
New Britain, Conn.

Drills, Twist

Black Drill Co.
5005 Euclid Ave.
Cleveland, Ohio
Cleveland Twist Drill Co.
1242 E. 48 St.
Cleveland, Ohio
Morse Twist Drill & Machine Co.
New Bedford, Mass.
National Twist Drill Co.
6522 Brush St.
Detroit, Mich.
Union Twist Drill Co.
Athol, Mass.

Duplicators

A. B. Dick Co.
720 W. Jackson Blvd.
Chicago, Ill.
Ditto, Inc.
2243 W. Harrison St.
Chicago, Ill.
Speed-O-Print Corp.
153 N. Michigan Ave.
Chicago, Ill.
Standard Mailing Machine Co.
Everett, Mass.

Electric Eqpt. & Supplies

(see also radio equip.)

General Electric Co.
Schenectady, N. Y.
Ohmite Mfg. Co.
4835 Flournoy St.
Chicago, Ill.
Standard Electric Time Co.
79 Logan St.
Springfield, Mass.
Stromberg Time Corp.
109 Lafayette St.
New York, N. Y.
Universal Scientific Co.
Vincennes, Ind.
Westinghouse Electric & Mfg. Company
East Pittsburgh, Pa.
Weston Electrical Instrument Corp.
427 N. Broad St.
Elizabeth, N. J.

Electric Motors

(see motors)

Files, Hand

Delta File Works
4837 James St.
Philadelphia, Pa.
Henry Disston & Sons
Philadelphia, Pa.
Heller Bros. Co.
865 Mt. Prospect Ave.
Newark, N. J.
Nicholson File Co.
Providence, R. I.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Fayette R. Plumb, Inc.
4837 James St.
Philadelphia, Pa.
Simonds Saw & Steel Co.
Fitchburg, Mass.

Filing Machines

E. C. Atkins & Co.
Indianapolis, Ind.
Henry Disston & Sons
Philadelphia, Pa.
Foley Mfg. Co.
Minneapolis, Minn.

Forge Tools

Stanley Tools Div.
New Britain, Conn.

Foundry Eqpt.

Jefferson Machine Tool Co.
Fourth & Cutter Sts.
Cincinnati, Ohio
Sterling Wheelbarrow Co.
7036 W. Walker St.
Milwaukee, Wisc.

Furnaces, Shop

American Gas Furnace Co.
Spring St.
Elizabeth, N. J.
Cooley Electric Mfg. Co.
214 S. Senate Ave.
Indianapolis, Ind.
Johnson Gas Appliance Co.
Cedar Rapids, Ia.
Chicago Flexible Shaft Co.
5600 Roosevelt Rd.
Chicago, Ill.

Gages, Metalworking

Brown & Sharpe Mfg. Co.
Providence, R. I.
Lufkin Rule Company
Saginaw, Mich.
Millers Falls Co.
Greenfield, Mass.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
L. S. Starrett Co.
Athol, Mass.

Gages, Woodworking

Henry Disston & Sons
Philadelphia, Pa.
Millers Falls Co.
Greenfield, Mass.
Stanley Tools Div.
New Britain, Conn.

Gliders, Gliding Eqpt.

Briegleb Sailplane Corp.
Beverly Hills, Calif.
California Aero Glider Co.
1829 W. 61 St.
Los Angeles, Calif.
Schweizer Aircraft Corp.
Elmira, N. Y.

Glue Pots

Black & Decker Mfg. Co.
Towson, Md.
General Electric Co.
Schenectady, N. Y.
Oliver Machinery Co.
Grand Rapids, Mich.
Russell Electric Co.
360 W. Huron St.
Chicago, Ill.
Sta-Warm Electric Co.
Ravenna, Ohio
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.

Glues, Cements

Casein Co. of America
350 Madison Ave.
New York, N. Y.
Franklin Glue Co.
Columbus, Ohio
Gill Products Co.
Wisconsin Tower
Milwaukee, Wisc.
I. F. Laucks, Inc.
Maritime Bldg.
Seattle, Wash.
LePage's, Inc.
Gloucester, Mass.
Rogers Isinglass & Glue Co.
Gloucester, Mass.
Testor Chemical Co.
Rockford, Ill.
U. S. Plywood Corp.
616 W. 46 St.
New York, N. Y.

Grinders, Production, Surface, and Tool

(see also grinders, portable; grinders, toolpost)

Abrasive Machine Tool Co.
Providence, R. I.
Albertson & Co.
Sioux City, Ia.
Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Baldor Electric Co.
4325 Duncan Ave.
St. Louis, Mo.
Black & Decker Mfg. Co.
Towson, Md.
R. L. Carter Div.
The Stanley Works
New Britain, Conn.
Cincinnati Electrical Tool Co.
Cincinnati, Ohio
Cincinnati Grinders, Inc.
Cincinnati, Ohio
Jas. Clark Jr. Electric Co.
Louisville, Ky.
Cleveland Tool Engineering Co.
9205 Detroit Ave.
Cleveland, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Douglas Machinery Co.
150 Broadway
New York, N. Y.
Gallmeyer & Livingston Co.
Grand Rapids, Mich.
Hammond Machinery Builders
Kalamazoo, Mich.
Jefferson Machine Tool Co.
Fourth & Cutter Sts.
Cincinnati, Ohio
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Machinery Mfg. Co.
1915 E. 51 St., Vernon
Los Angeles, Calif.
Millers Falls Co.
Greenfield, Mass.
Mummert-Dixon Co.
Hanover, Pa.
Norton Company
Worcester, Mass.
Oliver Machinery Co.
Grand Rapids, Mich.
Porter-Cable Machine Co.
1714 N. Salina St.
Syracuse, N. Y.
Power King Tool Corp.
Warsaw, Ind.
Queen City Machine Tool Co.
218 E. Second St.
Cincinnati, Ohio
Rivett Lathe & Grinder, Inc.
20 Riverview Rd.
Boston, Mass.
Standard Electric Tool Co.
2490 River Rd.
Cincinnati, Ohio
Stanley Electric Tool Div.
New Britain, Conn.
Thompson Grinder Co.
Springfield, Ohio
U. S. Electrical Tool Co.
Cincinnati, Ohio
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.

Grinders, Portable Electric

Jas. Clark Jr. Electric Co
Louisville, Ky.
The Dumore Co.
Racine, Wisc.
Mall Tool Co.
7740 S. Chicago Ave.
Chicago, Ill.
Skilsaw, Inc.
5029A Elston Ave.
Chicago, Ill.

Grinders, Toolpost

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
R. L. Carter Div.
The Stanley Works
New Britain, Conn.
Cincinnati Electrical Tool Co.
Cincinnati, Ohio
Jas. Clark Jr. Electric Co.
Louisville, Ky.
The Dumore Co.
Racine, Wisc.

Hacksaws, Hand

(see also hand tools)

Clemson Brothers, Inc.
Middletown, N. Y.
Henry Disston & Sons
Philadelphia, Pa.
Millers Falls Co.
Greenfield, Mass.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Stanley Tools Div.
New Britain, Conn.
L. S. Starrett Co.
Athol, Mass.

Training For War Production
Requires GOOD TOOLS
Write for Catalog No. 34 showing STANLEY TOOLS for all School Shops • •
STANLEY TOOLS
CATALOGUE No. 34
STANLEY
FOR WOODWORKING AND FARM SHOPS
The most complete line offered by one manufacturer.
FOR ELECTRICAL SHOPS
Hammers, Bit Braces, Bit Extensions, Screw Drivers, etc.
FOR SHEET METAL SHOPS
Hammers, Chisels, Punches, etc.
FOR AUTOMOBILE SHOPS
Body and Fender Tools, Hammers, Chisels, Punches, Screw Drivers, etc.
FOR MACHINE SHOPS
Hammers, Rules, Chisels, Punches, Levels, etc.
FOR FORGE SHOPS
Anvil Tools, Tongs, Hammers, etc.
Visual Teaching Aids and Project Plans at cost.
STANLEY TOOLS
DIVISION OF THE STANLEY WORKS
Educational Dept., New Britain, Conn.
1843 STANLEY 1943

Plan

FOR TOMORROW

Today!

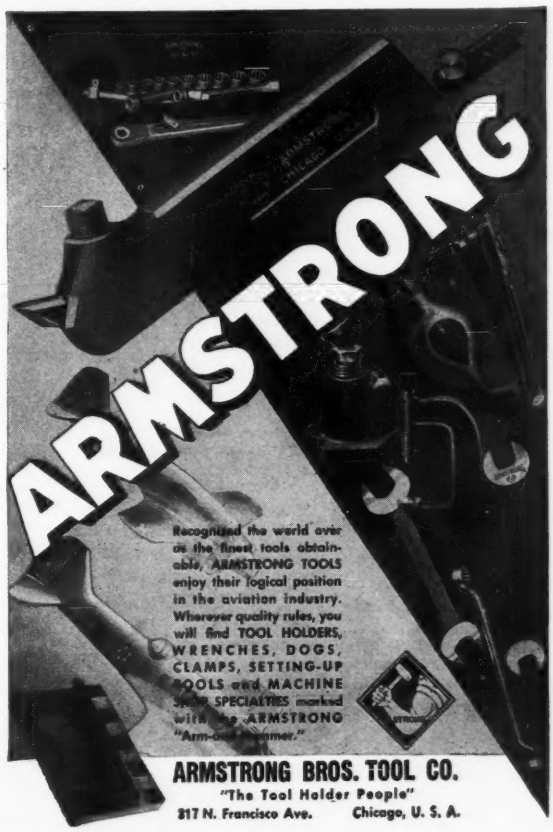
Shop Bench 108-24-DS

Out of this gigantic war effort—out of necessity, new and better materials, methods, and designs are being born.

Sheldon, long a leader in producing laboratory, home economics, art and vocational furniture, is applying Today's advances in making a superior line even more outstanding.

If we can help you Plan for Tomorrow—write today; one of our Planning Engineers will call.

E. H. SHELDON & CO.
728 NIMS STREET MUSKEGON, MICHIGAN


ARMSTRONG
Recognized the world over as the finest tools obtainable, ARMSTRONG TOOLS enjoy their logical position in the aviation industry. Wherever quality rules, you will find TOOL HOLDERS, WRENCHES, DOGS, CLAMPS, SETTING-UP TOOLS and MACHINE SPECIALTIES marked with the ARMSTRONG "Arm-Strong Hammer."
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
317 N. Francisco Ave. Chicago, U. S. A.

Henry G. Thompson & Son Co.
277 Chapel St.
New Haven, Conn.
Union Hardware Co.
Torrington, Conn.

Hacksaws, Power

Armstrong Blum Mfg. Co.
5700 Bloomingdale Ave.
Chicago, Ill.
Herbert Machine Co.
Los Angeles, Calif.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
L-W Chuck Co.
1 St. Clair St.
Toledo, Ohio
Peerless Machine Co.
Racine, Wisc.
Racine Tool & Machine Co.
Racine, Wisc.
W. Robertson Machine & Foundry Co.
Rano St.
Buffalo, N. Y.
Sales Service & Mfg. Co.
473 N. Cleveland Ave.
St. Paul, Minn.

Hammers, Metalworking

William Dixon, Inc.
32 E. Kinney St.
Newark, N. J.
Millers Falls Co.
Greenfield, Mass.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Fayette R. Plumb, Inc.
4837 James St.
Philadelphia, Pa.
Stanley Tools Div.
New Britain, Conn.

Hammers, Woodworking

Millers Falls Co.
Greenfield, Mass.
Fayette R. Plumb, Inc.
4837 James St.
Philadelphia, Pa.
Stanley Tools Div.
New Britain, Conn.

Handicrafts

(see crafts)

Hand Tools, Machine Shop

(see also hand tools, mechanics)

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Stanley Tools Div.
New Britain, Conn.
Union Hardware Co.
Torrington, Conn.

Hand Tools, Mechanics

Blackhawk Mfg. Co.
Milwaukee, Wisc.
Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio
New Britain Machine Co.
New Britain, Conn.
North Brothers Mfg. Co.
Lehigh & American Aves.
Philadelphia, Pa.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Stanley Tools Div.
New Britain, Conn.
J. H. Williams & Co.
Buffalo, N. Y.

Hand Tools, Woodworking

Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio
Lussky, White & Coolidge
65 W. Lake St.
Chicago, Ill.
Millers Falls Co.
Greenfield, Mass.
North Brothers Mfg. Co.
Lehigh & American Aves
Philadelphia, Pa.
Stanley Tools Div.
New Britain, Conn.
Union Hardware Co.
Torrington, Conn.

Hardware Supplies

Brodhead-Garrett Co.
4560 E. 71st St.
Cleveland, Ohio
Lussky, White & Coolidge
65 W. Lake St.
Chicago, Ill.
Stanley Works
New Britain, Conn.
Thurston Supply Co.
Anoka, Minn.
Upholstery Supply Co.
1033 N. Fourth St.
Milwaukee, Wisc.
Yale & Towne Mfg. Co.
Stamford, Conn.

Hoists, Cranes

Chisholm-Moore Hoist Corp.
Tonawanda, N. Y.
Harnischfeger Corp.
Milwaukee, Wisc.
Industrial-Brownhoist Corp.
Bay City, Mich.
Robbins & Myers Co.
Springfield, Ohio
Shaw Box Crane & Hoist Div.
Muskegon, Mich.
Yale & Towne Mfg. Co.
4530 Tacony Ave.
Philadelphia, Pa.

Jig Saws

(see saws, jig)

Jointers

(see planers, woodworking)

Knives, Sloyd, Craft

Robert Murphy's Sons Co.
Ayer, Mass.
X-acto Crescent Products Co.
440 Fourth Ave.
New York, N. Y.

Lathes, Engine

American Tool Works Co.
Cincinnati, Ohio
Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Boye & Emmes Machine Tool Co.
Cincinnati, Ohio
Bradford Machine Tool Co.
Cincinnati, Ohio
Cincinnati Lathe & Tool Co.
3207 Disney, Cincinnati
Hardinge Brothers, Inc.
Elmira, N. Y.
R. K. LeBlond Mach. Tool Co.
Cincinnati, Ohio
Lodge & Shipley Mach. Tool Co.
Cincinnati, Ohio
Logan Engineering Co.
4901 Lawrence Ave.
Chicago, Ill.
Monarch Machine Tool Co.
Sidney, Ohio
Sheldon Machine Co.
4240 N. Knox Ave.
Chicago, Ill.
Simmons Machine Tool Corp.
Albany, N. Y.
South Bend Lathe Works
South Bend, Ind.
Springfield Mach. Tool Co.
Springfield, Ohio
Wade Tool Co.
Waltham, Mass.

Lathes, Turret

(includes screw machines)

American Tool Works Co.
Cincinnati, Ohio
Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Gisholt Machine Co.
Madison, Wisc.
Hardinge Brothers, Inc.
Elmira, N. Y.
R. K. LeBlond Machine Tool Co.
Cincinnati, Ohio
Lodge & Shipley Machine Tool Co.
Cincinnati, Ohio
Logan Engineering Co.
4901 Lawrence Ave.
Chicago, Ill.
Monarch Machine Tool Co.
Sidney, Ohio
Oster Mfg. Co.
2061 E. 61 St.
Cleveland, Ohio
Rivett Lathe & Grinder, Inc.
20 Riverview Rd.
Boston, Mass.
South Bend Lathe Works
South Bend, Ind.
Warner & Swasey Co.
Cleveland, Ohio

Lathes, Woodworking

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
J. A. Fay & Egan Co.
Cincinnati, Ohio
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Millers Falls Co.
Greenfield, Mass.
Oliver Machinery Co.
Grand Rapids, Mich.
Power King Tool Corp.
Warsaw, Ind.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.
Yates-American Machine Co.
Beloit, Wisc.

Levels

Henry Disston & Sons
Philadelphia, Pa.
Millers Falls Co.
Greenfield, Mass.
Stanley Tools Div.
New Britain, Conn.
L. S. Starrett Co.
Athol, Mass.

Lumber

(see also woodshop supplies)

Brodhead-Garrett Co.
4560 E. 71 St.
Cleveland, Ohio
T. A. Foley Lumber Co.
Paris, Ill.
Tegge Lumber Co.
3500 Bruce St.
Milwaukee, Wisc.

Machine Shop Eqpt. & Supplies

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.
Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Auto-Ordnance Corp.
Thompson Tool Div.
Greenwich, Conn.
Challenge Machinery Co.
Grand Haven, Mich.
Cleveland Tool Engineering Co.
9205 Detroit Ave.
Cleveland, Ohio
E & N Mfg. Co.
3321 Montrose Ave.
Chicago, Ill.
F & M Sales Co.
1054 Cahuenga Blvd.
Hollywood, Calif.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Machinery Mfg. Co.
1915 E. 51 St., Vernon
Los Angeles, Calif.

Machine Tool Attachments

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Gray-Mills Co.
213 W. Ontario St.
Chicago, Ill.
Hardinge Bros. Inc.
Elmira, N. Y.
Jefferson Machine Tool Co.
Fourth & Cutter Sts.
Cincinnati, Ohio
Kearney & Trecker Corp.
Milwaukee, Wisc.
Kempsmith Machine Co.
Milwaukee, Wisc.
H. Leach Machinery Co.
Providence, R. I.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
South Bend Lathe Works
South Bend, Ind.

Machine Tools, Wood and Metal

(see machine wanted)

Measuring Tools, Precision

(see also tool wanted)

Brown & Sharpe Mfg. Co.
Providence, R. I.
Lufkin Rule Co.
Saginaw, Mich.
L. S. Starrett Co.
Athol, Mass.

Mechanical Drawing

(see drafting)

Metalworking Supplies

Brodhead-Garrett Co.

Metalworking Machinery

(see sheetmetal machinery)

Micrometer Calipers

Brown & Sharpe Mfg. Co.
Providence, R. I.
Lufkin Rule Co.
Saginaw, Mich.
Millers Falls Co.
Greenfield, Mass.
L. S. Starrett Co.
Athol, Mass.

Milling Machines

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Brown & Sharpe Mfg. Co.
Providence, R. I.
Cincinnati Milling Machine Co.
Cincinnati, Ohio
Diamond Tool Co.
3429 E. Olympic Blvd.
Los Angeles, Calif.
Douglas Machinery Co.
150 Broadway
New York, N. Y.
Greaves Machine Tool Co.
Cincinnati, Ohio
Hardinge Brothers, Inc.
Elmira, N. Y.
Jackson Machine & Tool Co.
Jackson, Mich.
Jefferson Machine Tool Co.
Fourth & Cutter Sts.
Cincinnati, Ohio
Kearney & Trecker Corp.
Milwaukee, Wisc.
Kempsmith Machine Co.
Milwaukee, Wisc.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
J. L. Lucas & Son
Bridgeport, Conn.
Machinery Mfg. Co.
1915 E. 51 St., Vernon
Los Angeles, Calif.
W. H. Nichols & Son
Waltham, Mass.
Ohio Machine Tool Co.
Kenton, Ohio
Simmons Machine Tool Co.
Albany, N. Y.
Van Norman Machine Tool Co.
Springfield, Mass.

Mortisers, Woodworking

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio

R. L. Carter Div.
The Stanley Works
New Britain, Conn.

Crescent Machine Co.
Leetonia, Ohio

Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.

Oliver Machinery Co.
Grand Rapids, Mich.

Porter-Cable Machine Co.
1714 N. Salina St.
Syracuse, N. Y.

Walker-Turner Co.
600 South Ave.
Plainfield, N. J.

J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.

Yates-American Machine Co.
Beloit, Wisc.

Motors, Electric

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio

Century Electric Co.
St. Louis, Mo.

Fairbanks Morse & Co.
600 S. Michigan Ave.
Chicago, Ill.

General Electric Co.
Schenectady, N. Y.

Lima Electric Motor Co.
Lima, Ohio

Power King Tool Corp.
Warsaw, Ind.

Robbins & Myers Co.
Springfield, Ohio

Walker-Turner Co.
600 South Ave.
Plainfield, N. J.

Westinghouse Elec. & Mfg. Co.
East Pittsburgh, Pa.

Painting Eqpt., Spray

Balko Electric Tool and Supply Co.
605 W. Washington St.
Chicago, Ill.

W. R. Brown Corp.
5720 W. Armitage Ave.
Chicago, Ill.

The DeVilbiss Co.
Toledo, Ohio

Paints, Finishes

Brodhead-Garrett Co.
4560 E. 71 St.
Cleveland, Ohio

M. L. Campbell Co.
Kansas City, Mo.

E. I. Dupont de Nemours & Co.
Finishes Dept.
Wilmington, Del.

The Garland Co.
3748 E. 91st St.
Cleveland, Ohio

General Finishes Sales & Service Co.
1548 W. Bruce St.
Milwaukee, Wisc.

The Glidden Co.
11001 Madison Ave.
Cleveland, Ohio

Pittsburgh Plate Glass Co.
Pittsburgh, Pa.

Sherwin-Williams Co.
Cleveland, Ohio

Planers, Metalworking

Cincinnati Planer Co.
Cincinnati, Ohio

Liberty Planers, Inc.
Hamilton, Ohio

Ohio Machine Tool Co.
Kenton, Ohio

Rockford Machine Tool Co.
Rockford, Ill.

Simmons Machine Tool Co.
Albany, N. Y.

Planers & Jointers, Woodworking

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio

Buss Machine Works
Holland, Mich.

Crescent Machine Co.
Leetonia, Ohio

Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.

J. A. Fay & Egan Co.
Cincinnati, Ohio

Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.

Oliver Machine Co.
Grand Rapids, Mich.

Parks Woodworking Machine Co.
Cincinnati, Ohio

Power King Tool Corp.
Warsaw, Ind.

Walker-Turner Co.
600 South Ave.
Plainfield, N. J.

J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.

Woodworkers Tool Works
222 S. Jefferson St.
Chicago, Ill.

Yates-American Machine Co.
Beloit, Wisc.

Planes, Hand

Millers Falls Co.
Greenfield, Mass.

Stanley Tools Div.
New Britain, Conn.

Plywood

(see also lumber)

U. S. Plywood Corp.
616 W. 46th St.
New York, N. Y.

Portable Electric Tools

(see also tool wanted)

Balko Electric Tool & Supply Co.
605 W. Washington St.
Chicago, Ill.

Jas. Clark Jr. Electric Co.
Louisville, Ky.

Dremel Mfg. Co.
1344 Clark St.
Racine, Wisc.

Foredom Electric Co.
27 Park Pl.
New York, N. Y.

Mall Tool Co.
7740 S. Chicago Ave.
Chicago, Ill.

Precise Products Co.
715 Racine St.
Racine, Wisc.

Speedway Mfg. Co.
1834 S. 52 St.
Cicero, Ill.

Standard Electric Tool Co.
2490 River Rd.
Cincinnati, Ohio

Stanley Electric Tool Div.
New Britain, Conn.

U. S. Electric Tool Co.
Cincinnati, Ohio

Fred W. Wappat
7325 Penn Ave.
Pittsburgh, Pa.

Precision Eqpt.

(see also measuring tools)

Challenge Machinery Co.
Grand Haven, Mich.

Presses, Arbor

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.

Famco Machine Co.
1320 18th St.
Racine, Wisc.

Presses, Printing

American Type Founders
200 Elmora Ave.
Elizabeth, N. J.

Brandtjen & Kluge, Inc.
St. Paul, Minn.

Challenge Machinery Co.
Grand Haven, Mich.

Chandler & Price Co.
Cleveland, Ohio

Harris-Seybold-Potter Co.
Cleveland, Ohio

Miehle Printing Press & Mfg. Co.
W. 14th & S. Damen Ave.
Chicago, Ill.

Printing Eqpt. and Types

American Type Founders
200 Elmora Ave.
Elizabeth, N. J.

Baltimore Type Foundry
Baltimore, Md.

Challenge Machinery Co.
Grand Haven, Mich.

Chandler & Price Co.
Cleveland, Ohio

Hammond Machinery Builders
Kalamazoo, Mich.

Kelsey Company
Meriden, Conn.

J. A. Richards Co.
Kalamazoo, Mich.

H. B. Rouse & Co.
Chicago, Ill.

Projectors & Eqpt.

Ampro Corp.
2839 N. Western Ave.
Chicago, Ill.

Bausch & Lomb Optical Co.
Rochester, N. Y.

Bell & Howell Co.
1801 Larchmont Ave.
Chicago, Ill.

DeVry Corp.
1100 Armitage Ave.
Chicago, Ill.

Eastman Kodak Co.
Rochester, N. Y.

Jam Handy Organization
2900 E. Grand Blvd.
Detroit, Mich.

Society for Visual Education
100 E. Ohio St.
Chicago, Ill.

Spencer Lens Co.
Buffalo, N. Y.

Victor Animatograph Corp.
Davenport, Ia.

Publishers

American Technical Society
58th St. & Drexel Ave.
Chicago, Ill.

Theo Audel & Co.
49 W. 23 St.
New York, N. Y.

Bruce Publishing Co.
540 N. Milwaukee St.
Milwaukee, Wisc.

Burgess Publishing Co.
426 S. Sixth St.
Minneapolis, Minn.

Frederick J. Drake & Co.
600 W. Van Buren St.
Chicago, Ill.

Ginn & Co.
Statler Bldg.,
Boston, Mass.

Goodheart-Willcox Co.
2009 S. Michigan Ave.
Chicago, Ill.

Paul K. Guillow
New Salem St.
Wakefield, Mass.

Harper & Brothers
49 E. 33 St.
New York, N. Y.

D. C. Heath & Co.
285 Columbus Ave.
Boston, Mass.

Norman W. Henley Publ. Co.
17-19 W. 45 St.
New York, N. Y.

Henry Holt & Co.
257 Fourth Ave.
New York, N. Y.

International Textbook Co.
Scranton, Pa.

The Macmillan Co.
60 Fifth Ave.
New York, N. Y.

Manual Arts Press
Peoria, Ill.

McCormick-Mathers Publishing Co.
Wichita, Kans.

McGraw-Hill Book Co.
330 W. 42 St.
New York, N. Y.

McKnight & McKnight
Bloomington, Ill.

MoToR, Book Dept.
572 Madison Ave.
New York, N. Y.

Pitman Publishing Corp.
2 W. 45 St.
New York, N. Y.

Prentice-Hall, Inc.
70 Fifth Ave.
New York, N. Y.

Radio & Technical Publishing Co.
45 Astor Pl.
New York, N. Y.

John F. Rider Publisher, Inc.
404 Fourth Ave.
New York, N. Y.

Ronald Press Co.
15 E. 26 St.
New York, N. Y.

Scott, Foresman & Co.
623 S. Wabash Ave.
Chicago, Ill.

Silver Burdett Co.
45 E. 17 St.
New York, N. Y.

Simmons-Boardman Publishing Corp.
30 Church St.
New York, N. Y.

D. Van Nostrand Co.
250 Fourth Ave.
New York, N. Y.

John Wiley & Sons, Inc.
440 Fourth Ave.
New York, N. Y.

John C. Winston Co.
1006 Arch St.
Philadelphia, Pa.

World Book Co.
Yonkers-on-Hudson, N. Y.

Punches

Brown & Sharpe Mfg. Co.
Providence, R. I.

Cincinnati Tool Co.
1951 Waverly, Norwood
Cincinnati, Ohio

Lufkin Rule Co.
Saginaw, Mich.

Millers Falls Co.
Greenfield, Mass.

Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.

Stanley Tools Div.
New Britain, Conn.

L. S. Starrett Co.
Athol, Mass.

Radio Eqpt. & Supplies

Allied Radio Corp.
833 W. Jackson Blvd.
Chicago, Ill.

Eagle Radio Co.
84 Cortland St.
New York, N. Y.

General Cement Mfg. Co.
Rockford, Ill.

Lafayette Radio Corp.
901 W. Jackson Blvd.
Chicago, Ill.

McElroy Mfg. Co.
82 Brookline Ave.
Boston, Mass.

Meissner Mfg. Co.
Mt. Carmel, Ill.

Thordarson Electric Mfg. Co.
500 W. Huron St.
Chicago, Ill.

Utah Radio Products Co.
820 N. Orleans St.
Chicago, Ill.

Routers, Woodworking

R. L. Carter Div.
The Stanley Works
New Britain, Conn.

Cincinnati Electrical Tool Co.
Cincinnati, Ohio

Duro Metal Products Co.
2649 N. Kildare Ave.
Chicago, Ill.
Oliver Machinery Co.
Grand Rapids, Mich.
Stanley Electric Tool Div.
New Britain, Conn.
Woodworkers Tool Works
222 S. Jefferson St.
Chicago, Ill.

Rules, Measuring

Brown & Sharpe Mfg. Co.
Providence, R. I.
Lufkin Rule Co.
Saginaw, Mich.
Millers Falls Co.
Greenfield, Mass.
Stanley Tools Div.
New Britain, Conn.
L. S. Starrett Co.
Athol, Mass.

Safety Equipment

Industrial Gloves Co.
Danville, Ill.
Mine Safety Appliance Co.
Braddock, Thomas &
Meade Sts.
Pittsburgh, Pa.
Safety Equipment Service
Co.
Rose Bldg.
Cleveland, Ohio

Sanders and Surfacers

(includes belt, disc, spindle, and portable)

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
R. L. Carter Div.
The Stanley Works
New Britain, Conn.
Jas. Clark Jr. Electric Co.
Louisville, Ky.
Clarke Sanding Machine
Co.
Muskegon, Mich.
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
J. A. Fay & Egan Co.
Cincinnati, Ohio
Hammond Machinery
Builders
Kalamazoo, Mich.
Jefferson Machine Tool Co.
Fourth & Cutter Sts.
Cincinnati, Ohio
Mead Specialties Co.
15 S. Market St.
Chicago, Ill.
Millers Falls Co.
Greenfield, Mass.
Oliver Machinery Co.
Grand Rapids, Mich.
Parks Woodworking Ma-
chine Co.
Cincinnati, Ohio
Porter-Cable Machine Co.
1714 N. Salina St.
Syracuse, N. Y.
Power King Tool Corp.
Warsaw, Ind.
Skilsaw, Inc.
5029A Elston Ave.
Chicago, Ill.
Stanley Electric Tool Div.
New Britain, Conn.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.
Yates-American Machine
Co.
Beloit, Wisc.

Saw Blades, Band

E. C. Atkins & Co.
Indianapolis, Ind.
Atlantic Saw Mfg. Co.
New Haven, Conn.
Burrill Saw & Tool Works
Ilion, N. Y.
Henry Disston & Sons
Philadelphia, Pa.
The Doall Company
Des Plaines, Ill.
Huther Bros. Saw Mfg. Co.
Rochester, N. Y.
Millers Falls Co.
Greenfield, Mass.
Simonds Saw & Steel Co.
Fitchburg, Mass.
L. S. Starrett Co.
Athol, Mass.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.

Saw Blades, Circular

E. C. Atkins & Co.
Indianapolis, Ind.
Burrill Saw & Tool Works
Ilion, N. Y.
Henry Disston & Sons
Philadelphia, Pa.
Huther Bros. Saw Mfg. Co.
Rochester, N. Y.
Simonds Saw & Steel Co.
Fitchburg, Mass.
Woodworkers Tool Works
222 S. Jefferson St.
Chicago, Ill.

Saw Blades, Metalcutting

American Saw & Mfg. Co.
Springfield, Mass.
E. C. Atkins & Co.
Indianapolis, Ind.
W. O. Barnes Co.
1297 Terminal St.
Detroit, Mich.
Clemson Brothers, Inc.
Middletown, N. Y.
Diamond Saw Works
Buffalo, N. Y.
Henry Disston & Sons
Philadelphia, Pa.
Millers Falls Co.
Greenfield, Mass.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Simonds Saw & Steel Co.
Fitchburg, Mass.
Spartan Saw Works
Springfield, Mass.
Stanley Tools Div.
New Britain, Conn.
L. S. Starrett Co.
Athol, Mass.

Saw Filers, Automatic

Foley Mfg. Co.
Minneapolis, Minn.

Saws

(see also hacksaws)

Saws, Hand, Woodworking

E. C. Atkins & Co.
Indianapolis, Ind.
Henry Disston & Sons
Philadelphia, Pa.
Millers Falls Co.
Greenfield, Mass.

Saws, Jig

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Oliver Machinery Co.
Grand Rapids, Mich.
Porter-Cable Machine Co.
1714 N. Salina St.
Syracuse, N. Y.
Power King Tool Corp.
Warsaw, Ind.
Stanley Electric Tool Div.
New Britain, Conn.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.
Yates-American Machine
Co.
Beloit, Wisc.

Saws, Metalcutting, Band

Armstrong Blum Mfg. Co.
5700 Bloomingdale Ave.
Chicago, Ill.
Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
Continental Machines, Inc.
Minneapolis, Minn.
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Duro Metal Products Co.
2649 N. Kildare Ave.
Chicago, Ill.
Johnson Mfg. Co.
5000 Chrysler Bldg.
New York, N. Y.
Kalamazoo Tank & Silo Co.
Machine Tool Div.
Kalamazoo, Mich.
The Tannewitz Works
Grand Rapids, Mich.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
Wells Mfg. Corp.
Three Rivers, Mich.

Saws, Scroll, Woodworking

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Millers Falls Co.
Greenfield, Mass.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
Beloit, Wisc.
Yates-American Machine
Co.
Beloit, Wisc.

Saws, Woodworking, Band

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Duro Metal Products Co.
2649 N. Kildare Ave.
Chicago, Ill.
J. A. Fay & Egan Co.
Cincinnati, Ohio
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Oliver Machinery Co.
Grand Rapids, Mich.
Parks Woodworking Mach.
Co.
Cincinnati, Ohio
Power King Tool Corp.
Warsaw, Ind.
The Tannewitz Works
Grand Rapids, Mich.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.
Woodworkers Tool Works
222 S. Jefferson Ave.
Chicago, Ill.
Yates-American Machine
Co.
Beloit, Wisc.

Saws, Woodworking, Circular

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
J. A. Fay & Egan Co.
Cincinnati, Ohio
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Oliver Machinery Co.
Grand Rapids, Mich.
Parks Woodworking Ma-
chine Co.
Cincinnati, Ohio
Power King Tool Corp.
Warsaw, Ind.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.
J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.
Woodworkers Tool Works
222 S. Jefferson Ave.
Chicago, Ill.
Yates-American Machine
Co.
Beloit, Wisc.

Screwdrivers

Lufkin Rule Co.
Saginaw, Mich.
Millers Falls Co.
Greenfield, Mass.
North Bros. Mfg. Co.
Lehigh & American Aves.
Philadelphia, Pa.
Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.
Stanley Tools Div.
New Britain, Conn.
L. S. Starrett Co.
Athol, Mass.
Union Hardware Co.
Torrington, Conn.

Screw Machines

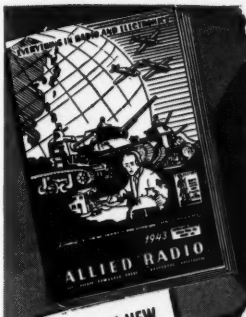
(see lathes, turret)

Shapers, Metalworking

American Tool Works Co.
Cincinnati, Ohio
Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.
Automotive Maintenance
Machinery Co.
North Chicago, Ill.
R. L. Carter Div.
The Stanley Works
New Britain, Conn.
Cincinnati Shaper Co.
Cincinnati, Ohio
General Engineering &
Mfg. Co.
St. Louis, Mo.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Machinery Mfg. Co.
1915 E. 51 St., Vernon
Los Angeles, Calif.
Ohio Machine Tool Co.
Kenton, Ohio
Porter-Cable Machine Co.
1714 N. Salina St.
Syracuse, N. Y.
Rhodes Mfg. Co.
Waltham, Mass.
Rockford Machine Tool Co.
Rockford, Ill.
Sales Service & Mfg. Co.
473 N. Cleveland Ave.
St. Paul, Minn.

Shapers, Woodworking

Boice-Crane Co.
938 Central Ave.
Toledo, Ohio
R. L. Carter Div.
The Stanley Works
New Britain, Conn.
Crescent Machine Co.
Leetonia, Ohio
Delta Mfg. Co.
600 E. Vienna Ave.
Milwaukee, Wisc.
Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.
Oliver Machinery Co.
Grand Rapids, Mich.
Power King Tool Corp.
Warsaw, Ind.
Stanley Electric Tool Div.
New Britain, Conn.
Walker-Turner Co.
600 South Ave.
Plainfield, N. J.



EVERYTHING YOU NEED for WAR TRAINING in RADIO and ELECTRONICS

USE THE NEW ALLIED CATALOG
Most Complete Up-to-Date 1943 Buying Guide
FREE!

Radio training specialists in Allied's Educational Division help you plan and carry out your training projects. The new, *free* 1943 Allied Buying Guide gives you the latest information on books, diagrams, kits, tubes, tools, test equipment, public address . . . everything in Radio and Electronics to meet every radio training need in the classroom, laboratory or shop. Write our Educational Division.

★ USE THESE VALUABLE TRAINING AIDS

Radio Formulas and Data Book No. 37-752—10c
Dictionary of Radio Terms No. 37-751—10c
Radio Circuit Handbook . . . No. 37-753—10c
Radio Builders Handbook . . No. 37-750—10c
Simplified Radio Servicing . . . No. 37-755—10c

Priced only to cover cost of handling and mailing

Write for quantity quotations

ALLIED RADIO CORP.
833 W. Jackson, Dept. 30-F-3, Chicago

ALLIED RADIO ★

The Story of WOOD and GLUE At War!

Please limit requests to one copy

FREE TO INSTRUCTORS

Not a shop book, but you'll want a copy for its news about the new things wood and glue are doing in this war. Shows case histories, describes new developments and uses for modern glues. It points up the future value of woodworking courses.

556

CASEIN COMPANY OF AMERICA
Division of The Borden Co., 350 Madison Avenue, New York, N. Y.
Please send me a copy of "Wood And Glue At War"

Name.....

School.....

Title.....*City*.....

CALLING ALL SCHOOLS

UNCLE SAM has for months been emphasizing Industry's urgent need of more trained men and women . . . . and calling on schools from coast to coast to enlarge their training facilities to help take care of it.

If your school has all the equipment and supplies needed to do an all-out job—this message is not for you.

But, if you haven't—then we suggest you itemize your needs at once and get your order in while our stock of equipment and supplies still assures prompt deliveries. As national school distributors for scores of leading equipment manufacturers, we are in position to take care of your needs now—but we don't know how long we shall be.

If you need High Speed Drills, Hammers, Chisels, Files, Wrenches, Soldering Irons and other tools and equipment formerly available only on PD-1A forms, make up your order at once, and upon receipt of it we will furnish you with the necessary information on how these can be supplied to you.

If you need lumber—there is plenty of the famous B-G Soft-Textured, Kiln-Dried Lumber—but there are Government restrictions on Yellow Poplar, Mahogany and Plywood, as previously announced to you.

Whatever your needs—check them *at once* and *send your order in today!*

BRODHEAD-GARRETT CO.

"Supplying Defense Training Needs to Schools in All 48 States"

CLEVELAND, OHIO

J. D. Wallace Co.
134 S. California Ave.
Chicago, Ill.

Yates-American Machine Co.
Beloit, Wisc.

Sheetmetal Equipment

Niagara Machine & Tool Works
637 Northland Ave.
Buffalo, N. Y.

O'Neil Irwin Mfg. Co.
355 Eighth Ave., S.
Minneapolis, Minn.

Peck, Stow & Wilcox Co.
Southington, Conn.

Shop Furniture

All-Steel-Equip Co.
Aurora, Ill.

Angle Steel Stool Co.
Plainwell, Mich.

A. L. Bemis Co.
56 Commercial St.
Worcester, Mass.

Bradley Washfountain Co.
2203 W. Michigan St.
Milwaukee, Wisc.

Brodhead-Garrett Co.
4560 E. 71 St.
Cleveland, Ohio

Hamilton Mfg. Co.
Two Rivers, Wisc.

Kewaunee Mfg. Co.
Adrian, Mich.

Lussky, White & Coolidge
65 W. Lake St.
Chicago, Ill.

Lyon Metal Products Co.
Aurora, Ill.

National Lumber Co.
St. Paul, Minn.

E. H. Sheldon & Co.
Muskegon, Mich.

Snips, Sheetmetal

Peck, Stow & Wilcox Co.
Southington, Conn.

J. Wiss & Sons Co.
31 Littleton Ave.
Newark, N. J.

Soaps, Hand, Industrial

G. H. Packwood Mfg. Co.
2038 Walnut St.
St. Louis, Mo.

Sugar Beet Products Co.
Saginaw, Mich.

West Disinfecting Co.
Long Island City, N. Y.

Solders & Fluxes

Gardiner Metal Co.
8424 S. Campbell Ave.
Chicago, Ill.

Kester Solder Co.
4201 Wrightwood Ave.
Chicago, Ill.

Philadelphia Solder Co.
2545 Aramingo Ave.
Philadelphia, Pa.

Ruby Chemical Co.
Columbus, Ohio

Squares, Precision

Brown & Sharpe Mfg. Co.
Providence, R. I.

Lufkin Rule Co.
Saginaw, Mich.

Millers Falls Co.
Greenfield, Mass.

L. S. Starrett Co.
Athol, Mass.

Squares, Woodworking

Millers Falls Co.
Greenfield, Mass.

Henry Disston & Sons
Philadelphia, Pa.

Stanley Tools Div.
New Britain, Conn.

Surfacers

(see planers, sanders)

Taps & Dies

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.

John Bath & Co.
Worcester, Mass.

Detroit Tap & Tool Co.
Detroit, Mich.

Greenfield Tap & Die Corp.
Greenfield, Mass.

Morse Twist Drill & Mach. Co.
New Bedford, Mass.

Teachers Agencies

Albert Teachers Agency
25 E. Jackson Blvd.
Chicago, Ill.

Baltimore Teachers Agency
516 N. Charles St.
Baltimore, Md.

Fisk Teachers Agency
28 E. Jackson Blvd.
Chicago, Ill.

Hughes Teachers Agency
25 E. Jackson Blvd.
Chicago, Ill.

Rocky Mt. Teachers Agency
Denver, Colo.

Schummers School Service
910 Lumber Exchange Bldg.
Minneapolis, Minn.

Testing Instruments

Tinius Olsen Testing Machine Co.
500 N. 12 St.
Philadelphia, Pa.

Tool Holders, Lathe

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.

Auto-Ordnance Corp.
Thompson Tool Div.
Greenwich, Conn.

Ready Tool Co.
Bridgeport, Conn.

J. H. Williams & Co.
Buffalo, N. Y.

Upholstery Supplies

Lussky, White & Coolidge
65 W. Lake St.
Chicago, Ill.

Upholstery Supply Co.
1033 N. Fourth St.
Milwaukee, Wisc.

Vises, Machine Shop

Atlas Press Co.
1836 N. Pitcher St.
Kalamazoo, Mich.

Brown & Sharpe Mfg. Co.
Providence, R. I.

Columbian Vise & Mfg. Co.
9021 Bessemer St.
Cleveland, Ohio

Lewis Machine Tool Co.
Box 116, Sta. A
Los Angeles, Calif.

Millers Falls Co.
Greenfield, Mass.

Morgan Vise Co.
120 N. Jefferson St.
Chicago, Ill.

North Bros. Mfg. Co.
Lehigh & American Aves.
Philadelphia, Pa.

Ridge Tool Co.
Elyria, Ohio

Stanley Tools Div.
New Britain, Conn.

J. H. Williams & Co.
Buffalo, N. Y.

Vises, Woodworking

A. L. Bemis Co.
56 Commercial St.
Worcester, Mass.

Columbian Vise & Mfg. Co.
9021 Bessemer St.
Cleveland, Ohio

Millers Falls Co.
Greenfield, Mass.

Morgan Vise Co.
120 N. Jefferson St.
Chicago, Ill.

Oliver Machinery Co.
Grand Rapids, Mich.

Charles Parker Co.
Meriden, Conn.

Stanley Tools Div.
New Britain, Conn.

Woodworkers Tool Works
222 S. Jefferson St.
Chicago, Ill.

Visual Aids

Bell & Howell Co.
1801 Larchmont Ave.
Chicago, Ill.

Brandon Films, Inc.
1600 Broadway
New York, N. Y.

Bray Pictures Corp.
729 Seventh Ave.
New York, N. Y.

Castle Films, Inc.
30 Rockefeller Plaza
New York, N. Y.

Eastman Kodak Co.
Teaching Films Div.
Rochester, N. Y.

Erpi Classroom Films
1841 Broadway
New York, N. Y.

Walter O. Gutlohn, Inc.
25 W. 45 St.
New York, N. Y.

Herbert D. Hall Foundation
1061 Broad St.
Newark, N. J.

Jam Handy Organization
2900 E. Grand Blvd.
Detroit, Mich.

National Audio-Visual Council, Inc.
160 N. LaSalle St.
Chicago, Ill.

RCA-Victor Div., Educ. Dept.
Radio Corp. of America
Camden, N. J.

Society for Visual Education, Inc.
100 E. Ohio St.
Chicago, Ill.

Sound Masters, Inc.
165 W. 46 St.
New York, N. Y.

Welding Eqpt., Electric

Air Reduction Sales Co.
60 E. 42 St.
New York, N. Y.

Eisler Engineering Co.
763 S. 13 St.
Newark, N. J.

General Electric Co.
Schenectady, N. Y.

Harnischfeger Corp.
Milwaukee, Wisc.

Hobart Bros. Co.
Troy, Ohio

K. O. Lee Co.
Aberdeen, S. D.

Lincoln Electric Co.
12818 Coit Rd.
Cleveland, Ohio

Marquette Mfg. Co.
Minneapolis, Minn.

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.

Welding Eqpt., Gas

Air Reduction Sales Co.
60 E. 42 St.
New York, N. Y.

Carbide & Carbon Chemicals Corp.
30 E. 42 St.
New York, N. Y.

Woodshop Supplies

(see also item wanted)

Brodhead-Garrett Co.
4560 E. 71 St.
Cleveland, Ohio

Albert Constantine & Sons
797 E. 135 St.
New York, N. Y.

Craftsman Wood Service Co.
2727 S. Mary St.
Chicago, Ill.

Long's Woodcraft Supply
Goshen, Ind.

Lussky, White & Coolidge
65 W. Lake St.
Chicago, Ill.

Upholstery Supply Co.
1033 N. Fourth St.
Milwaukee, Wisc.

Woodworking Equipment

(see also item wanted)

Barron Tool Co.
Architects Bldg.
Detroit, Mich.

H. J. Berry Mfg. Co.
2291 Scott St.
Detroit, Mich.

Wrenches, All Kinds

Armstrong Bros. Tool Co.
317 N. Francisco Ave.
Chicago, Ill.

Billings & Spencer Co.
Hartford, Conn.

Blackhawk Mfg. Co.
Milwaukee, Wisc.

Bonney Forge & Tool Works
Allentown, Pa.

Cornwell Quality Tool Co.
Mogadore, Ohio

Duro Metal Products Co.
2649 N. Kildare Ave.
Chicago, Ill.

North Bros. Mfg. Co.
Lehigh & American Aves.
Philadelphia, Pa.

Peck, Stow & Wilcox Co.
Southington, Conn.

Plomb Tool Co.
2109 Santa Fe Ave.
Los Angeles, Calif.

Ridge Tool Co.
Elyria, Ohio

Snap-On Tools Corp.
Kenosha, Wisc.

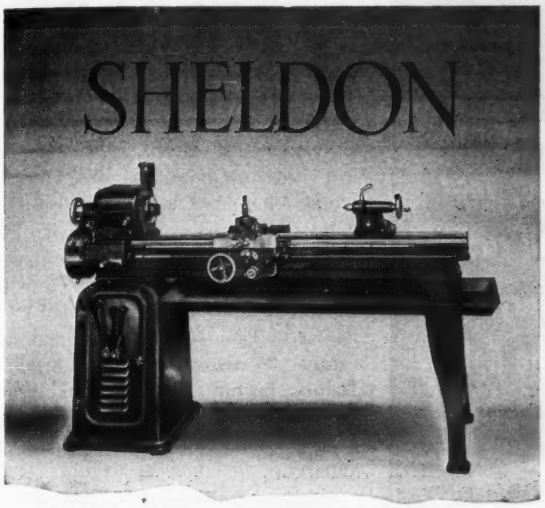
Stanley Tools Div.
New Britain, Conn.

L. S. Starrett Co.
Athol, Mass.

J. H. Williams & Co.
Buffalo, N. Y.

To help you plan equipment and supply purchases during the coming year . . .

Keep this Directory Issue handy!



Sheldon BBU-1240 WQ Precision Lathe

This quality 12 in. ball bearing tool room lathe is built for precision work and will retain its accuracy under long and hard usage. It has extra collet capacity (to 1" round), the finest precision ball or roller bearings obtainable, an improved heavy-duty, double wall apron with power cross feed; full quick change gears and full bowl headstock. Its improved SHELDON 4-speed, V-belt, lever-clutch operated, underneath motor drive is entirely enclosed in the pedestal leg and has anti-friction bearings. It is so designed that spindle belts operate through a standard 1-piece bed. This bed is bridge-braced with heavy cross girts and has hand scraped ways—2 V-ways and 2 flat ways.

If interested in 10", 11" and 12" quality lathes be sure to see the SHELDON.

SHELDON MACHINE CO. INC.

4260 N. Knox Ave., Chicago, U.S.A.

SETTING THE PACE ON EVERY PRODUCTION FRONT

Saving 90% of clamping time—new designs for high speed production work, one hand operation. Non-creep replaceable grips, proof-tested alloy steel construction of forged clamp capacity.

Quikcet 4 second clamp will hold tight even on tapered surfaces without creeping. Fast ratchet rod action under powerful fulcrum leverage Screws, rods and handles copper plated against welding spatter.

A complete line of modern time-saving clamps—both malleable iron and alloy steel: Dual Grip "C" Clamps; Heavy Duty Speed Clamps; Standard DeLux; Standard Alloy-Steel; and Quick Lockcet, the last word in modern clamp design.

Write today for circular

GRAND SPECIALTIES CO. 3134 W. Grand Ave. Chicago, Ill.

KEEP *School Shop* COMING!

You want SCHOOL SHOP to continue to arrive on your desk each month . . . but we *cannot* send it unless we know your *correct school address* and the subject you teach. So, if you have . . .

- **accepted a new teaching position this year;**
- **been transferred to another school in your system;**
- **begun teaching a *new* shop subject,**

let us know by postal card *immediately* so that you won't miss a single issue of SCHOOL SHOP. This is important, since the postoffice *will not* forward your copy to a new address. Write . . .

CIRCULATION DEPARTMENT ***School Shop***

P. O. Box 100 **Ann Arbor, Michigan**

Model Airplane Books

Tom's Book of Flying Models —Instruction Manual **15¢** Postpaid

Flying Models—How to Build and Fly Them—Instruction Manual **35¢** Postpaid

Paul K. Guillow **Wakefield, Mass.**

Better Electrical Instruction Requires Demonstration Equipment

which permits students to grasp electrical fundamentals quickly. All principles and applications of electrical theory are readily made tangible by demonstrations with our equipment.

A complete course in essentials of electricity and radio can be built around our integrated instruction equipment and text material.

No special current sources required—visual education at its best! Write for free illustrated catalog and information on introductory discounts.

Universal Scientific Co., Inc. **DEPT. B.**

Vincennes, Ind.

THEY *all* FIT
THEY'RE *all* INTERCHANGEABLE
–INSTANTLY...*and renewable*

New! 16-page illustrated book "How to Build Scale Models for Defense." Expert information for your Shop Project Work.

SUPER KEEN – IDEAL FOR MANUAL TRAINING

Help the Navy! 500,000 scale model planes needed fast. X-Acto builds them better, quicker, easier. WRITE US NOW! X-Acto Crescent Products Co., Inc., 440 Fourth Ave., New York, N. Y.

X-acto REFILL BLADE **KNIVES**

INSTRUCTORS!

We are helping Uncle Sam to teach radio to the armed forces . . . and we can help you, too! **LAFAYETTE** *is HEADQUARTERS for all radio and electronic parts and equipment of every nationally known manufacturer in the field.*

LAFAYETTE has been devoting all facilities to help win the war. No effort has been spared in providing much needed parts and equipment—on time! Lafayette parts and equipment are used in Signal Corps training schools throughout the U. S. A single order, no matter how large or how small, will bring prompt delivery on all your requirements.

TRAINING KITS

REPLACEMENT PARTS

CODE TRAINING EQUIPMENT

TECHNICAL BOOKS

P. A. SYSTEMS

★ Standard kits carried in stock for quick delivery. Also kits especially created for *your* teaching problems. Write for free diagrams!

★ For kits you are now using. Whatever you need . . . Lafayette has it in stock for immediate delivery. Send your order to Lafayette. A single order will fill all your needs for parts and equipment.

★ Complete stocks . . . headphones, keys, oscillators, automatic sending equipment, etc. Let Lafayette assist you in setting up circuits. Get your Fall Courses lined up now!

★ Lafayette has large stocks of radio, sound and electronic technical books and data covering every phase of radio and electronic training. Place your order now for quick delivery.

★ Public address systems and intercommunications systems in stock and ready for delivery. Write for information.

Take advantage of Lafayette's 25 years of experience. The Lafayette technical department offers free advice on YOUR teaching problems!

FREE: *130 page illustrated catalog containing thousands of radio and electronic parts and equipment items. Write today for your free copy. Address: 901 W. Jackson Blvd., Chicago, Ill. Dept. 6D3*

LAFAYETTE RADIO CORP. CHICAGO

901 W. JACKSON BLVD., CHICAGO, ILL. 265 PEACHTREE ST., ATLANTA, GEORGIA

"Quick Deliveries on Radio and Electronic Parts and Equipment"

news

WHAT'S DOING IN THE FIELD OF INDUSTRIAL EDUCATION

UNIVERSITY OF MICHIGAN Chapter has just been organized of Iota Lambda Sigma, national honorary trade-and-industrial fraternity. President of the chapter is Harold J. Van Westrienen, acting chief of the Division of Trade and Industrial Education, Michigan State Board of Control for Vocational Education. Secretary-treasurer is Frank W. Dalton, Lecturer in Vocational Education, University of Michigan. Dr. Alexander G. Ruthven, president of the University, is an honorary member.

Initiated at the April 16 meeting were: Claude Bosworth, Herbert Carter, Henry Doliber, Henry Douma, Louis Flower, Deyo B. Fox, Ben Fairman, John J. Harris, H. H. Harrison, Paul Jacquish, Carl Karlstrom, Edwin Melin, Hilmer Olson, E. C. Russell, Almando Vezzani, and Kenneth Willoughby.

Initiated in Toledo on December 5, 1942, were: John Amos, Floyd Allen, Frank Dalton, D. V. Duryee, George Frazee, Leo Handley, William Hawley, R. Vard Martin, Maurice Pancost, Harvey Smith, Harold J. Van Westrienen, and James Voyce.

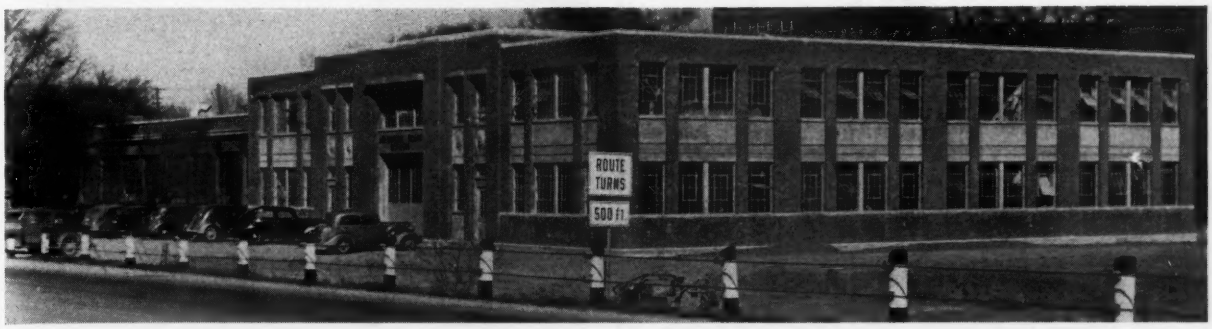
Transfers from other chapters are: George H. Fern, Thomas Diamond, C. E. Highlen, F. H. McCrea, and G. Robinson.

IN ITS report to Secretary of the Treasury Morgenthau, the Committee on Intergovernmental Fiscal Relations recently recommended that federal aid to state and local governments for educational purposes should be expanded to provide a national minimum of opportunity for at least elementary education.

Pointing out the wide variation from state to state in educational expenditures, the committee, appointed by Mr. Morgenthau, advocated increased federal aid as a means of equalizing educational opportunities. Present federal aid, the report brought out, amounts to only 2 percent of the total expenditure on education in the country.

NEW OFFICERS were recently elected for Mu Sigma Pi Graduate Fraternity of Wayne University, Detroit, Mich. The new officers are: president, Delmar Pardonnet; vice-president, Robert Shields; recording secretary, Fred Schelter; corresponding secretary, G. Manson Taylor; treasurer, Francis L. Zwickey; and to the Executive Board, Herbert Kolkind.

Shop Training for Victory . . .



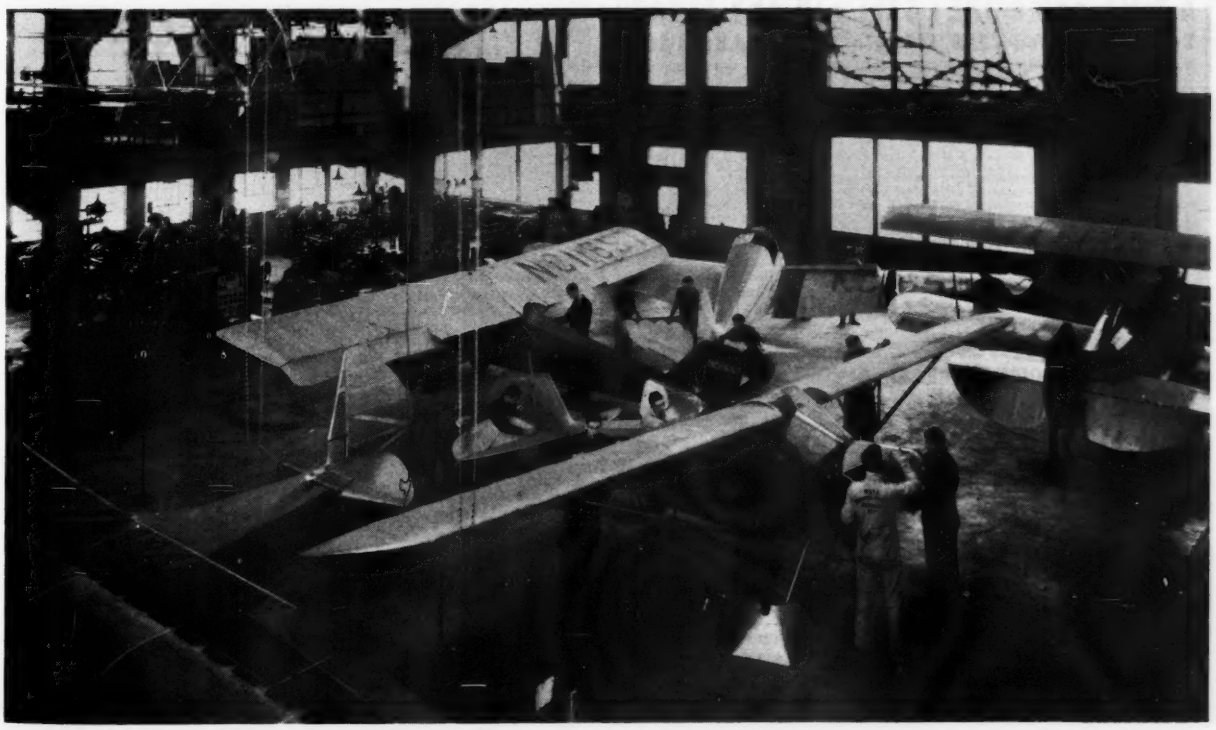
Aviation Mechanics Fly to Far Fields

THIS is a story in pictures of what Western Michigan College of Education at Kalamazoo is doing with a program of aviation education carried on under the direction of E. C. Weaver, Director of Vocational Education. Originally established to train high-school graduates in two-year courses leading to CAA licenses as airplane mechanics, engine mechanics, and airplane factory mechanics, as well as pilot training, the program has been rapidly adapted to wartime needs. Now it includes all of the above-mentioned courses plus a Navy pilot-training program, teacher-training courses for preflight instructors in high schools, and an extensive program of vocational training for war production workers.

Top above.—This is the Mechanical Trades Building which houses the vocational aviation mechanics program at Western Michigan College of Education. In addition, pilot training and some shop and ground-school courses are given at airports close to the college campus.

Left above.—Student mechanics working on a wing section under the direction of E. C. Weaver, head of the department. These students are working in the large central area of the building about which are located the various shops, classrooms, and administrative offices.

Below.—Students working in the central area with the machine shop in the lower background and the sheet-metal shop on the second floor above it. Each student keeps an accurate log book listing repairs and service work completed so that he has evidence of work experience.



NEW! INSTRUCTORS . . .

Organize your Pre-Flight Glider Class Now for Next Semester

PENGUIN J-12 Pre-Flight Glider used in High Schools and Colleges.

DESIGNED for National Defense Pre-Flight Glider Training, the PENGUIN J-12 GLIDER is absolutely safe. The student learns perfect co-ordination and mastery of controls while he becomes familiar with actual flying.

The PENGUIN J-12 is easy to build in the average School shop, requiring non-strategic materials that are available in all communities.

PREPARE GLIDER TRAINING IN YOUR SCHOOL!

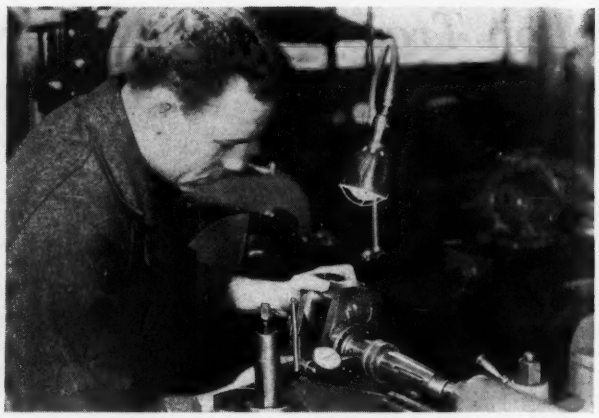
Aviation has a place for your students. Help your Country produce the needed technically trained young men and women to do their share for VICTORY! Make sure this Pre-Flight Glider Training is in your school's curriculum. Complete Pre-Flight Training & Construction Manuals with photographs, blueprints and instructions have been prepared for school use.

FOR FURTHER INFORMATION AND LITERATURE WRITE

CALIFORNIA AERO GLIDER CO.

Dept. SS-6 1829 W. 62nd St. Los Angeles, California

CALAIR J-12 PENGUIN



Above.—Student George Ferguson testing a crankshaft in aircraft machine shop. He later graduated from the pilot training program and has been a member of the ferry command flying cargoes from California to Alaska and return. A number of pilots trained at Western Michigan have seen active duty overseas.

Below.—Aircraft engine assembly students working on different types of power plants. Facilities are also available for the block testing of engines in a special testing room which is partitioned off from the main shop. Selection and use of special tools and wrenches and the functions of parts are covered in the course.

Above.—This is the woodworking shop in which is taught the operation and use of machine woodworking tools used in the maintenance and manufacturing of airplane parts. The manufacture of forms and dies used in shaping sheetmetal is also studied in this fully equipped woodworking shop. Several gliders have been built.

Below.—Mechanics learning light plane assembly and repair. Last spring, the Lockheed Aircraft Corporation in Burbank, California, took all of the mechanics available at that time, though they still had six months of training to complete the CAA license requirements. From Burbank they went to all parts of the world.

BOICE-CRANE POWER TOOLS

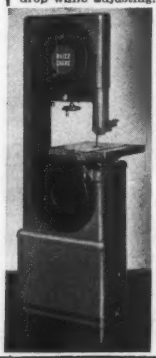
SAFETY-ENGINEERED · PRECISION-BUILT · SHOP-TESTED

MAKE ROOM FOR MORE TRAINEES • EFFECT QUICK SHOP EXPANSION • ASSURE SAFETY FOR INEXPERIENCED HANDS • AVAILABLE NOW

A TIME AND MONEY SAVER IN ANY PLANT

Boice-Crane Model 2300, 14" Safe, Steel Clad Band Saw

For cutting metals, wood, plastic and paper. Cuts stock 8¾" thick and handles 27¢ diameter work. Accurate blade tension scale. Entire frame work is a single, one-piece steel structure. Wheels made of strong, light weight materials, for exceptionally vibrationless and quiet operation. Wheel guards swing on hinges and must be closed before you can operate machine. Telescoping blade guard holds by friction when lock handle is released. It will not drop while adjusting.



Tool and die makers will appreciate our new blade guide design. These guides handle blades from ⅛" to ¾" without trouble, and are adjusted by a convenient single knob control.

The table is 15" x 15½" and is rigidly supported on two large trunnions—no portion can sag under heavy cuts. Table tilts 45° to right—10° to left—degree of tilt indicated by convenient scale. 8 speeds . . . one to suit every kind of blade and efficiently saw every kind of material. Heavy duty gears transmit as much as one horse power at lowest speed with a larger margin of safety. All gears run in oil.

On floor model everything including motor is fully enclosed and sealed against dust and grime—no exposed moving parts. Given top rating by State Safety Commissions.

Also available in bench model.

A battery of 6 to 10 Boice-Crane Saws cost no more than some single machines of big size.

BOICE-CRANE BELT SANDER

for rapid sanding, grinding, polishing flat and contour metal, fibre, wood or plastic parts. Large, free-rolling work table handles surfaces 36" wide, 60" long, and any length stock up to 12" wide. Drive belt tension automatically maintained.

FOR FREE 48-PAGE CATALOG USE THIS COUPON

BOICE-CRANE COMPANY • 938 Central Ave., Toledo, Ohio

Name_____

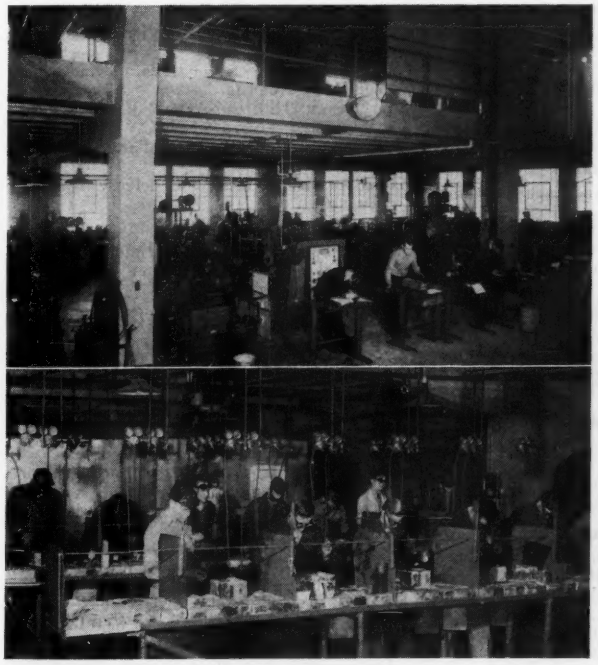
Street_____

City_____

THICKNESS PLANERS · TAPPING MACHINES
SAW JOINTERS · DRILL PRESSES · BELT SANDERS
SPINDLE SANDERS · BAND SAWS · SPINDLE SHAPERS

Above.—Thorough grounding in all aspects of aircraft radio is offered at Western Michigan. This is a corner of the radio maintenance and service shop. Fundamental operating principles are stressed as well as the care and testing of advanced types of aircraft radio transmitters and receivers used by the armed forces.

Below.—View of the extensive machine-shop facilities which are housed in space adjoining the central hangar and work area. This equipment is used for the VTWPW program as well as for the vocational aviation course students. A number of former students have been assigned as instructors by the Army and Navy.



Above.—Both oxyacetylene and arc welding are taught at W.M.C.E. with special attention being paid to approved repair procedures in aircraft work. J. W. Giachino, former instructor, is now a Navy Lieutenant Commander organizing courses in welding in various Naval training centers throughout the United States.

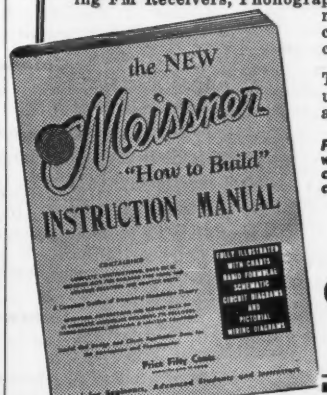
Below.—Some college students also are enrolled in the pilot-training program. One former student, Charles Van Euwen, was awarded the Distinguished Service Cross posthumously following the crash of a bomber which he was piloting over Long Island. He chose to crash in a quarry rather than leave the ship, which was headed for a populated area.

Here's the RADIO MANUAL YOU MUST HAVE!

THE IDEAL RADIO MANUAL FOR INSTRUCTORS

THE new Meissner "How to Build" Radio Instruction Manual, edited by expert Radio Engineers is fully illustrated with charts, Radio Formulae, Schematic Circuit Diagrams and Pictorial Wiring Diagrams. Contains a complete outline of Frequency Modulation Theory.

Construction data on 22 kits for building radio receivers and adapter units, with operating instructions and servicing data on over a dozen complete assemblies, including FM Receivers, Phonograph-Recorder, and radio equipment, also gives you valuable coil design and circuit application data.


the NEW
Meissner
"How to Build"
INSTRUCTION MANUAL
FULLY ILLUSTRATED WITH CHARTS, RADIO FORMULAE, SCHEMATIC CIRCUIT DIAGRAMS AND PICTORIAL WIRING DIAGRAMS
Price Fifty Cents

The Radio Instruction Manual for the beginner and the advanced student training.

Price, only 50 cents post paid anywhere in the U.S.A. (seventy-five cents in Canada). Send for your copy today!

Meissner
MT. CARMEL, ILLINOIS
"PRECISION-BUILT PRODUCTS"

Practical Textbooks

Examine Them on APPROVAL

These modern texts have been especially prepared for school use. You can employ them to excellent advantage in your Victory Training program as well as your regular program. An examination will convince you of their suitability to your classroom needs. Any books sent for 30 days ON APPROVAL inspection subject to our educational discount if retained.

Fundamentals of Electricity and Workbook (PIT)	$2.50
Fundamentals of Machines and Workbook (PIT)	2.50
Fundamental Shop Training and Workbook (PIT)	2.50
Dunwoody Arc Welding Unit	1.25
Dunwoody Gas Welding Unit	1.25
Electrical and Radio Dictionary	1.00
Mechanical Drawing	2.00
How To Plan A House	4.50
How To Remodel A House	4.75
Plane Trigonometry Made Plain	2.75
Metallurgy	2.50
Shipbuilding Blueprint Reading	3.00
Tool Design	4.50
Machine Trades Blueprint Reading	2.00
Plastics	3.00
How To Read Electrical Blueprints	3.00
*Flight—First Principles	2.50
*Flight—Aviation Engines	3.25
*Flight—Meteorology and Aircraft Instruments	3.25
*Flight—Construction and Repair	2.50
Machine Shop Work	3.50

*Note: These books have been listed in Leaflet No. 63 issued by U. S. Office of Education

(TEAR OFF HERE AND MAIL TO US)

AMERICAN TECHNICAL SOCIETY
Drexel Ave., at 58th St., Chicago, Dept. HS—164

Please send the following texts for 30 days ON APPROVAL examination. I will either return them at the end of that time or remit less your educational discount.

Name

School

School Address

Directory of Federal and State Officials

THIS list of federal and state officials in vocational and industrial arts education has been carefully compiled from authoritative sources. It should be kept for ready reference.

U. S. Office of Education Washington, D. C.

J. C. Wright, Assistant Commissioner for Vocational Education.
R. V. Billington, Executive Assistant in Vocational Education.
W. P. Beard, Administrative Assistant in Vocational Education.

Federal Advisory Board for Vocational Education

Robert J. Watt, representing labor, chairman.
Claude R. Wickard, Secretary of Agriculture.
Jesse H. Jones, Secretary of Commerce.
Frances Perkins, Secretary of Labor.
———, U. S. Commissioner of Education.
Paul H. Nystrom, representing manufacturing and commerce.
Clarence Poe, representing agriculture.

Trade and Industrial Education Services

Layton S. Hawkins, chief.
Jerry R. Hawke, assistant chief.
G. A. McGarvey, agent, north Atlantic region.
E. G. Ludtke, agent, southern region.
N. B. Giles, agent, central region.
Walter H. Cooper, agent, western region.
Mack Stoker, special agent.
Louise Moore, special agent, women and girls.
Robert W. Hambrook, senior specialist.
Allen T. Hamilton, special agent.
Felix E. Averill, special agent.

Consultants

James R. Coxen, consultant, public-service training.
C. E. Rakestraw, consultant, employee-employer relations.
Rall I. Grigsby, consultant, curriculum problems.
Consultant in industrial arts education—Maris M. Proffitt.

Occupational Information and Guidance

Harry A. Jager, chief.
Walter J. Greenleaf, occupational information.
Royce E. Brewster, consultation and field service.
Franklin R. Zeran, occupational information.
Mrs. Marguerite W. Zapoleon, occupations for girls and women.

Alabama

J. B. Hobdy, director of vocational education, Montgomery.
R. E. Cammack, supervisor of agricultural education, Montgomery.
E. R. Plowden, supervisor of trade and industrial education, University.

Arizona

L. D. Klemmedson, director of vocational education, Phoenix.

Arkansas

Fred A. Smith, director of division of vocational education, Little Rock.
C. R. Wilkey, supervisor of vocational education, Little Rock.
W. J. Breit, supervisor of trade and industrial education, Little Rock.

California

J. C. Beswick, assistant executive officer, commission for vocational education and chief of bureau of trade and industrial education, Sacramento.
Julian A. McPhee, chief of bureau of agricultural education, San Luis Obispo.

Canal Zone

Calmer A. Batalden, director of vocational education, Balboa Heights.

Colorado

H. A. Tiemann, director of vocational training, Denver.

Connecticut

A. S. Boynton, director, bureau of vocational education, Hartford.
Richard W. Howes, field supervisor of trades and industries, Hartford.
Blanche M. Penn, assistant supervisor of girls' trades, Hartford.
R. L. Hahn, field supervisor of agriculture, Hartford.

Delaware

R. W. Heim, director of vocational education, Newark.
A. B. Anderson, supervisor of trades and industries, Wilmington.
Paul M. Hodgson, supervisor of agriculture, Dover.

Florida

Robert D. Dolley, supervisor of trade and industrial education, Tallahassee.
J. F. Williams, Jr., supervisor of agricultural education, Tallahassee.

Georgia

M. D. Mobley, director of vocational education, Atlanta.
J. F. Cannon, state supervisor, trade and industrial education, Atlanta.

Hawaii

W. W. Beers, assistant superintendent for vocational education, Honolulu.
Ernest L. Hood, territorial supervisor of trades and industry, Honolulu.
Melvin H. Frank, coordinator, national defense training, Honolulu.

Idaho

William Kerr, director of vocational education and supervisor of agriculture, Boise.
Thor H. Mork, supervisor of trade and industrial and distributive education, Boise.
H. T. Ashford, supervisor of war production trades and industry, Boise.
Stanley S. Richardson, supervisor of agricultural education, Boise.

Illinois

J. E. Hill, director of vocational education, Springfield.
J. W. Thompson, supervisor of trade and industrial education, Springfield.
E. J. Simon, supervisor, vocational education for war workers, Springfield.

Indiana

H. W. Schulze, supervisor of trade and industrial education, Indianapolis.
Harry F. Ainsworth, supervisor of agricultural and industrial education, Indianapolis.
H. G. McComb, director, war production training, Indianapolis.

Iowa

Forest E. Moore, director of vocational education, Des Moines.
Harry W. Carmichael, supervisor of trade and industrial education and distributive education, Des Moines.
Hampton T. Hall, supervisor of agricultural education, Des Moines.

Kansas

C. M. Miller, director of vocational education and supervisor of trade and industry, Topeka.
Laurence Parker, supervisor of trade and industrial education, Pittsburg.
O. H. Beaty, assistant supervisor of trade and industrial education, Pittsburg.
L. B. Pollom, supervisor of vocational agriculture, Topeka.

Kentucky

R. H. Woods, director of vocational education and supervisor of agricultural education, Frankfort.
Harold G. Wilson, supervisor of trade and industrial education, Frankfort.

Louisiana

Andrew Triche, supervisor of trade and industrial education, Baton Rouge.
S. M. Jackson, supervisor of vocational agriculture, Baton Rouge.

Maine

Austin Alden, director of vocational education, Augusta.
S. E. Patrick, director of trade and industrial education, Augusta.
Herbert S. Hill, supervisor of agriculture, Orono.
Ralph W. Haskell, supervisor of arts and crafts, Augusta.
Morris Cates, director of defense training, Augusta.

Maryland

John J. Seidel, assistant superintendent in vocational education, Baltimore.
Glen Brown, acting supervisor of industrial education, Baltimore.
H. F. Cotterman, supervisor of agriculture, College Park.

Massachusetts

M. Norcross Stratton, director, division of vocational education, Boston.
Daniel H. Shay, supervisor of industrial schools for men and boys, Boston.
Frank L. Allen, supervisor of vocational art education in industry and business, Boston.
John G. Glavin, supervisor of agricultural schools and departments, Boston.
Thomas L. Flynn, supervisor of vocational teacher training in field of industrial schools for men and boys, Boston.
William J. McConnell, assistant supervisor of vocational teacher training in field of industrial schools for men and boys, Boston.
John I. Lusk, assistant supervisor of vocational teacher training in field of continuation schools for boys.

Michigan

George H. Fern, director, State Board of Control for Vocational Education, Lansing.
H. J. Van Westrienen, chief, trade and industrial education division, Lansing.
W. B. Hawley, supervisor, trade and industrial education, Lansing.
J. J. Harris, state coordinator, apprentice training, Lansing.
Harry E. Nesman, chief, agricultural education division, Lansing.

Minnesota

Harry C. Schmid, acting director of vocational education and defense training, St. Paul.
S. K. Wick, state supervisor of trade and industrial education, St. Paul.
Guy O. Tollerud, state supervisor of war production training, St. Paul.
John Fuhlbruegge, area supervisor, war production training, Winona.
Leo L. Knuti, supervisor of agricultural education, St. Paul.

Why You Should Subscribe to
THE EDUCATION DIGEST

1. The EDUCATION DIGEST brings you condensations of the most worthwhile and interesting articles from the more than 600 educational periodicals.
2. It will keep you well informed on educational matters with a minimum expenditure of time and money.
3. You will not miss such important pronouncements as the Educational Policies Commission reports, the New York Regents' Inquiry, the President's Advisory Committee Report, etc.
4. States H. P. Collins, Principal, Junior High School No. 1, Trenton, N. J.: "The money I can spend and the time I can give to the reading of educational magazines is limited and the EDUCATION DIGEST provides me with a collection of leading articles of far greater scope than I could possibly get otherwise."

SUBSCRIPTION $3 A YEAR

Send your subscription order now to

THE EDUCATION DIGEST

Box 100s

ANN ARBOR, MICHIGAN

"E" FOR EXCELLENCE

in production of the tools that safeguard the accuracy of American Industry . . .

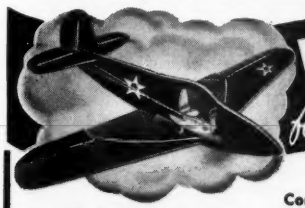
We, at the Lufkin Rule Company, are proud to have received the Army-Navy award in recognition of the quality and quantity of precision measuring tools we have produced. Scarcely a single part of the vast supply of war equipment America today is producing can be made without the aid of precision tools, measuring tapes or rules.

In accepting this award, we pledge ourselves to ever greater production efforts until the final victory has been won.

LUFKIN

PRECISION TOOLS • TAPES • RULES

SAGINAW, MICHIGAN NEW YORK CITY



VISUAL AIDS *for* AIR-AGE EDUCATION

***The* COMET AIR-O-TRAINER**

A unique control-demonstration model which enables the instructor to demonstrate the position of the various controls in any flying attitude. Offered in completely finished form, with control surfaces in contrasting color—$4.75. Knock-down kit form, $1.50.

Comet offers a group of classroom aids, from a paper glider to a wind tunnel, to assist in teaching the principles of aeronautics. These include practical visual aids, several graded projects and kits. Write for free Air Age circular.

COMET
MODEL AIRPLANE & SUPPLY CO.
Dept. S-6, 129 W. 29th Street, CHICAGO
559 Sixth Avenue, NEW YORK

Teachers of Art and Mechanical Drawing

Send for a Sample of

Justrite

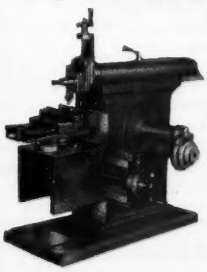
India Black Drawing Ink

Justrite ink flows more freely. It contains solvents to keep the suspended material from settling out . . . will not cake in bottle or on drawing instrument! If the sample convinces you that Justrite is the finest waterproof drawing ink you have ever used, we will send you without charge the new series of Wall Charts of Drawing Ink Methods for use in your class room next fall. It illustrates dozens of ways to work with drawing ink, helping you to demonstrate some of the newer techniques.

Write Dept. A. N. for your ink sample today!

THE LOUIS MELIND COMPANY
362 W. Chicago Ave. Chicago, Ill.

why not BUILD YOUR OWN SHOP TOOLS?



Finishing this husky, well designed Lewis 10" Metal Shaper absorbs student interest and proves highly educational and practical in basic shop training!

Like 22 other Lewis Shop Projects for metal or wood-working, this Shaper is supplied as rough or semi-finished castings with materials and construction blueprints. Students complete the machining, assemble the tool, and then operate it—receiving a worthwhile education in real machine tool design and operation. Cost . . . about 1/5 that of completed tools.

All Lewis Projects are fully described in the new FREE Catalog. Write for your copy TODAY—AND ASK FOR QUOTATIONS!

Lewis
MACHINE TOOL CO.
Castings for the Tool Industries
P. O. Box 116, Sta. A,
Dept. A-6, Los Angeles, Calif.

GET THIS CATALOG

Shows NEW Method of "METAL DUPLICATING Without Dies"

With DI-ACRO Precision Machines—Shears, Brakes, Benders—you can give your students a valuable training in precision work at the same time you teach them the principles of shearing, braking and bending operations. With this method of "DIE-LESS DUPLICATING" all duplicated parts are accurate to .001".

Many schools and universities are already equipped with these bench machines. Get the facts —send for catalog.

DI-ACRO
"THE ACCURACY WITHOUT DIES"
PRECISION MACHINES

O'NEIL-IRWIN MFG. CO.
335 8th Ave. S. Minneapolis, Minn.

Mississippi

H. E. Mauldin, Jr., director of vocational education, Jackson.
W. D. Gardner, supervisor of trade and industrial education, Jackson.
A. P. Fatheree, supervisor of vocational agriculture, Jackson.
R. H. Fisackerly, supervisor of vocational agriculture, Jackson.

Missouri

George E. Kohoman, supervisor of trades and industries, Jefferson City.
Carl Hayne, director of national defense training, Jefferson City.
Glen Woodruff, supervisor of vocational agriculture, Jefferson City.
Joe Duck, assistant supervisor of vocational agriculture, Jefferson City.
M. D. Thomas, assistant supervisor of vocational agriculture, Jefferson City.

Montana

Ralph Kenck, director of vocational education, Bozeman.
A. W. Johnson, supervisor of vocational agriculture, Bozeman.

Nebraska

Sidney Owen, director of vocational education, Lincoln.
Howard L. Gorham, supervisor of trade and industrial education, Lincoln.

Nevada

Robert B. Jeppson, supervisor of agricultural education and state director of vocational education, Carson City.
Donald C. Cameron, supervisor of trade and industrial education, Carson City.

New Hampshire

Walter M. May, director of vocational education, Concord.
Howard E. Swain, supervisor of trades and industries, Concord.

New Jersey

John A. McCarthy, director of vocational education, Trenton.
Arthur B. Wrigley, supervisor of trades and industry, Trenton.
Robert A. Campbell, supervisor of industrial arts, Trenton.
Harry O. Sampson, supervisor of agriculture, New Brunswick.
Owen Kiser, supervisor of farm shop training, New Brunswick.
J. Gould Spofford, supervisor of trade and industrial teacher training, Trenton.
John M. Fecher, supervisor of foreman training, Trenton.
Stanley Perkins, supervisor of war-production training, Elizabeth.
Joseph Fair, supervisor of private trade schools, Trenton.
Franklin Connolly, schedule supervisor, training-within-industry, Elizabeth.

New Mexico

Henry Gonzales, supervisor of trade and industrial education, Santa Fe.
Frank Wimberly, supervisor of agriculture, State College.

New York

Lewis A. Wilson, acting assistant commissioner for vocational and extension education, Albany.
Oakley Furney, chief, bureau of industrial and technical education, Albany.
H. L. Amonette, supervisor, bureau of industrial and technical education, Albany.
C. Kenneth Beach, supervisor, bureau of industrial and technical education, Albany.
W. N. Fenninger, supervisor, bureau of industrial and technical education, Albany.
Eugene D. Fink, supervisor, bureau of industrial and technical education, Albany.
Frank P. Johnston, supervisor, bureau of industrial and technical education, Albany.
Edward H. Lang, supervisor, bureau of industrial and technical education, Albany.
Blanche S. Nechanicky, supervisor, bureau of industrial and technical education, Albany.
Roy G. Fales, supervisor of industrial arts, Albany.
Alexander C. Ducat, supervisor, trade and industrial education, Albany.

North Carolina

T. E. Browne, director, division of vocational education, Raleigh.
George W. Coggin, supervisor of trades and industries, Raleigh.
John R. Ludington, supervisor of industrial arts education, Raleigh.

North Dakota

Edward Erickson, director of vocational education, Grand Forks.

Ohio

Paul B. Hartman, director of vocational training, Columbus.
E. L. Heusch, supervisor of vocational trades and industries, Columbus.
R. A. Howard, supervisor of vocational agriculture, Columbus.
W. G. Weiler, assistant supervisor, vocational agriculture, Columbus.

Oklahoma

J. B. Perky, supervisor, vocational agriculture and director of vocational education, Stillwater.
M. L. Powers, supervisor, vocational trade and industrial education, Stillwater.
R. P. Lewis, assistant supervisor, vocational trade and industrial education, Stillwater.
J. Perry Norris, assistant supervisor, vocational trade and industrial education, Stillwater.
Mildred Thompson, assistant supervisor, vocational trade and industrial education, Stillwater.

Oregon

Oscar I. Paulson, director of vocational education, Salem.
Walter W. Morse, assistant supervisor of trade and industrial education, Salem.
Herman N. Miller, supervisor of national defense training, Salem.
Earl R. Cooley, supervisor of vocational agriculture, Salem.

Pennsylvania

Paul L. Cressman, director of vocational education, Harrisburg.
Charles F. Zinn, adviser, industrial education, Harrisburg.
H. C. Fetterolf, chief, agricultural education, Harrisburg.

Puerto Rico

Lloyd A. LeZotte, director, insular board for vocational education, San Juan.
Rosa M. Castellón, supervisor of industrial education, San Juan.
Ferdinand Rossy, supervisor of industrial work, San Juan.
Oscar L. Bunker, insular supervisor, vocational trade and industrial education, San Juan.

Rhode Island

George H. Baldwin, director of vocational education and supervisor of agricultural education, Providence.
Raymond W. Perry, supervisor of trade and industrial education, Providence.

South Carolina

James H. Hope, director of vocational education, Columbia.
B. R. Turner, supervisor of industrial education, Columbia.
C. W. Lombard, assistant supervisor of industrial education, Columbia.
Verd Peterson, supervisor of agricultural education, Columbia.

South Dakota

C. O. Gottschalk, supervisor of trades and industry education, Brookings.
H. E. Urton, supervisor of agricultural education, Pierre.

Tennessee

G. E. Freeman, director of vocational education and supervisor of vocational agriculture, Nashville.
W. A. Seeley, supervisor of trade and industrial education, Nashville.

Texas

James R. D. Eddy, director of industrial education, Austin.
Robert A. Manire, director of vocational agriculture education, Austin.

Utah

Charles H. Skidmore, director of vocational education, Salt Lake City.
Howard B. Gunderson, director of trade and industrial education, Salt Lake City.
Mark Nichols, director of agricultural education, Salt Lake City.

Vermont

John E. Nelson, director of vocational education and supervisor of trade and industrial education, Montpelier.
Lewis J. Streeter, supervisor of trade and industrial education, Montpelier.
W. Howard Martin, supervisor of agricultural education, Burlington.

Virginia

Dabney S. Lancaster, director of vocational education, Richmond.
B. H. Van Oot, director of trade and industrial education, Richmond.
J. Milton Shue, assistant supervisor of trade and industrial education, Richmond.
W. S. Newman, director of agricultural education, Richmond.

Washington

H. G. Halstead, director of vocational education and supervisor of trade and industrial education, Olympia.
Claude H. Odom, assistant director of vocational education, Olympia.
W. L. Sundstrom, assistant supervisor of trade and industrial education, Olympia.
W. A. Guitteau, supervisor of agricultural education, Olympia.

West Virginia

William A. Williams, director of vocational training, Charleston.
John M. Lowe, assistant director of vocational education and supervisor of vocational agriculture, Charleston.

Wisconsin

G. P. Hambrecht, director, State Board of Vocational and Adult Education, Madison.
Robert L. Welch, supervisor of trade and industry, State Board of Vocational and Adult Education, Madison.

Wyoming

Sam Hitchcock, director for vocational education and supervisor of agricultural education, Cheyenne.
Raymond S. Orr, research in vocational education, Cheyenne.

Directory of National and State Associations . . . .

for Industrial Education Teachers

National Organizations

Alpha Tau Alpha. President: A. W. Nolan, University of Illinois, Urbana.

American Industrial Arts Association. Executive Secretary and Treasurer: John J. Hatch, State Teachers College, Newark, N. J.

American Vocational Association. Executive Secretary: L. H. Dennis, 1010 Vermont Ave. NW., Washington, D. C.

Epsilon Pi Tau. Executive Secretary: Dr. William E. Warner, Universal Station, Box 3111, Columbus, Ohio.

Iota Lambda Sigma. Secretary-Treasurer: George H. Resides, State College, Penna.

Mississippi Valley Conference. Secretary: Lt. Col. Verne C. Fryklund, Headquarters, Army Service Forces, Washington, D. C.

National Association for Printing Education. Secretary: Harold G. Crankshaw, Central High School, Washington, D. C.

National Association of Industrial Teacher Trainers. Secretary: Charles Cyrus, University of Texas, Austin.

National Association of State Directors of Vocational Education.

National Association of State Supervisors of Trade and Industrial Education.

National Council of City Directors of Vocational Education. Industrial Arts, and Trade School Principals. President: Charles F. Bauder, Director of Vocational Education, Philadelphia.

National Graphic Arts Education Association. Educational Director: Fred J. Hartman, 719 Fifteenth St., NW, Washington, D. C.

New England Industrial Arts Teachers Association. Secretary: Willis B. Anthony

State Organizations

Trade and Industrial Education Section, Alabama Vocational Association. Secretary: Mrs. Susan Garner, Gadsden.

Arizona Industrial Arts Association.

Arkansas Vocational Association. Secretary-treasurer: Harrie B. Thorn, Jr., Jonesboro.

Arkansas Industrial Education Association. Secretary: J. C. Ruppert, Arkansas State Trade School, Little Rock.

California Industrial Education Association.

Trade and Industrial Section, Colorado Vocational Association. Secretary: George Watts, Idaho Springs.

Colorado Vocational Association. Secretary: Miss Florence Sarchet, Emily Griffith Opportunity School, Denver.

Connecticut Industrial Arts Association. Secretary: Anthony Marinaccio, 466 Edgewood St., Hartford.

Delaware Industrial Arts Association.

Georgia Industrial Arts Association.

Illinois Vocational Association. Secretary: H. P. Erwin, Sullivan.

Illinois Industrial Education Association. Secretary: L. V. Newkirk, 228 North LaSalle St., Chicago.

Indiana Vocational Association. Secretary-Treasurer: Glen Barkes, Box 197, Bloomington.

Indiana Industrial Education Association. Secretary-Treasurer: H. G. McComb, Indianapolis.

Iowa Vocational Association. Secretary: H. W. Carmichael, State House, Des Moines.

Industrial-Distributive Education Association of Iowa. Secretary: H. W. Carmichael, State House, Des Moines.

Iowa Industrial Arts Association.

Kansas Industrial Arts Association. Secretary: J. I. Wolfe, Wyandotte High School, Kansas City.

Kentucky State Industrial Arts Association.

Louisiana Vocational Association. Secretary: George W. Moore, Lafayette.

Maine Industrial Arts Teachers Association.

Maryland Vocational Education Association.

Massachusetts Industrial Education Association.

Michigan Industrial Education Society. Executive Secretary-Treasurer: Arthur L. Reagh, 143 Bostwick St., N. E., Grand Rapids.

Michigan Vocational Association. Secretary: D. V. Duryle, Wilbur Wright High School, Detroit.

Minnesota Industrial Education Association. Secretary: Ernest R. Hoefs, High School, New Ulm.

Minnesota Vocational Association.

Missouri Association of Trade and Industrial Supervisors and Instructors. Secretary: C. Whitney, Kirksville, Mo.

Montana State Vocational Association. Secretary-Treasurer: Dwight Johnson, Dillon.

Montana Industrial Arts Association. Secretary: Charles Silverthorn, Gallatin County High School, Bozeman.

Nebraska Industrial Arts Teachers Association. Secretary: D. D. Keister, Grand Island.

Nebraska Vocational Association. Secretary: G. T. Boone, Fairbury.

Nevada Vocational Teachers Association. Secretary: Esther Scofield, Box 397, Ely.

New Hampshire Industrial Education Association.

New Jersey Vocational and Arts Association. Secretary: John J. Berilla, Phillipsburg.

New Jersey Vocational Association. Secretary: John A. McCarthy, State House, Trenton.

New York State Vocational and Practical Arts Association. Secretary: Roy F. Johncox, Vocational High School, Rochester.

North Carolina Vocational Association.

Ohio Industrial Arts Association. Secretary: C. S. Endicott, Cincinnati.

Ohio Trade and Industrial Education Association. Secretary: Anna Schmertzler, Macomber Vocational School, Toledo.

Ohio Vocational Education Association. Secretary: Elizabeth Moore, Ohio State University, Columbus.

Oklahoma Vocational Association.

Oregon Vocational Association. Secretary: June Gaines, State Library Bldg., Salem.

Pennsylvania Vocational Association. Secretary-Treasurer: F. Theodore Struck, State College.

Rhode Island Vocational Association. Secretary: Chester A. Ruoff, 53 Forbes St., Providence.

Texas Vocational Association. Secretary: Henry Ross, A and M College, College Station.

Utah Industrial Education Association. Secretary: LeRoy Blaser, 306 Kiesel Bldg., Ogden.

Utah Vocational Association. Secretary: H. H. Robinson, Davis High School, Kaysville.

Vermont Industrial Arts Association.

Virginia Vocational Education Association. Secretary-Treasurer: Anna Maxey, Victoria.

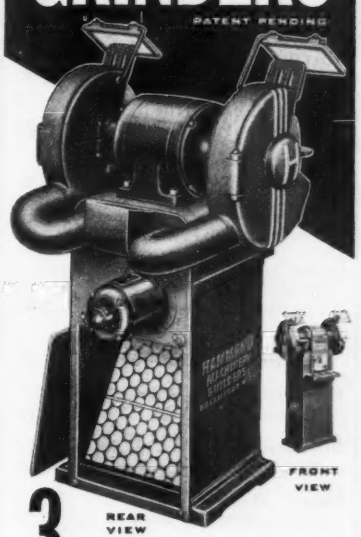
Virginia Co-operative Education Association. Secretary: Mrs. Hunter Barron, 16½ North 9th St., Richmond.

Washington Industrial Education Association. Secretary: Mrs. Evelyn Vanderpool, Edison Vocational School, Seattle.

Wisconsin Industrial Arts Association. Secretary-Treasurer: H. H. Shufelt, Racine.

Wisconsin Association for Vocational and Adult Education. Secretary-Treasurer: C. D. Rejahl, Beloit.

Hammond
OF KALAMAZOO
NO-DUST* GRINDERS



3 POPULAR SIZES
FOR 10", 12", 14" WHEELS

*COMPLETELY SELF-CONTAINED GRINDER AND DUST COLLECTOR

Here's a grinder that has everything for the School Training Shop!

You can't beat it as a space saver —takes only 50% of the space usually needed for grinder and independent dust collector.

Traps dust and grit right at the source . . . protects students' health.

You can move it anywhere . . . just plug it into an electrical outlet and instantly—it's ready for work.

Train your students on a real production grinder! Teach them the benefit of this "trick of the trade"—large grinding wheels are a short cut to better workmanship and increased production.

For complete information write today for Bulletin No. 13—no obligation!

Hammond Machinery Builders INC.
★★★ 1687 DOUGLAS AVENUE ★★★
KALAMAZOO • MICHIGAN
Eastern Branch—71 West 23rd Street, New York, N.Y.

BASIC BOOKS ON INDUSTRIAL SKILLS

Books which have proved their worth in schools, also in factories and our armed forces. They cover fundamentals simple enough for beginners yet are used by experts. Try them for your needs:

Oxy-Acetylene Welding and Cutting—*Giachino*	$1.96
Aircraft Sheet Metalwork—*Giachino*—Part I	1.96
Aircraft Sheet Metalwork—*Giachino*—Part II	.96
Sheet Metal Pattern Drafting & Shop Problems—*Daugherty*	1.76
Basic Bench—Metal Practice—*Giachino and Feirer*	1.84
Instruction Manual for Sheet-Metal Workers—*Selvidge and Christy*	1.24
Machine Shop Science and Mathematics—*Eaton and Free*	1.48
Elementary Forge Practice—*Harcourt*	2.00
Blacksmithing—*Selvidge and Allton*	1.00
Electric Motor Work—*Willoughby and Selvidge*	1.76
Machine Drafting—*Snow and Russell*	1.48
Handwork in Wood—*Noyes*	3.00
The Art of Wood-Turning—*Klenke*	2.00
Wood Finishing—*Jeffrey*	1.75
Model Making—*Bayley*	4.00
Pottery in the Making—*Lunn*	2.75
Seat Weaving—*Perry*	.90
Furniture Upholstery—*Johnson*	.90
Beginning Mechanical Drawing Units—*Roberts*	1.00
Mechanical Drawing for Beginners—*Bailey*	.48
Blueprint Reading—*Castle*	.96
Carpentry—*Griffith and Cox*	1.50
The Practice of Printing—*Polk*	1.80
Elementary Platen Presswork—*Polk*	1.50

A number of these books are published in two bindings, cloth and paper. Please specify.

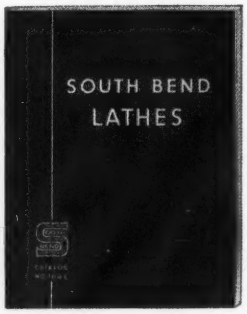
Order on Approval today

Quantity discounts for text use

THE MANUAL ARTS PRESS

PEORIA, ILLINOIS

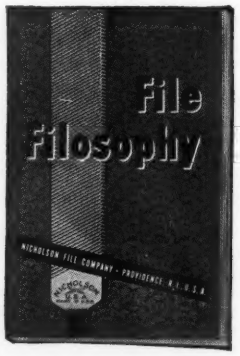
. . . news from INDUSTRY



New Catalog Describes South Bend Lathes

South Bend Lathe Works has just issued a new catalog describing its entire line of engine, toolroom, and turret lathes. Engine lathes are available from 9″ to 16″ swing, toolroom lathes, from 10″ to 16″, and turret lathes in 9″ and 10″ swings.

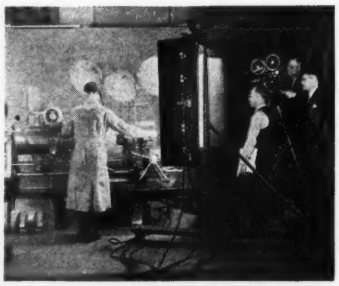
The catalog, No. 100-C, contains 48 pages and is of standard size for filing in a letter file. Copies may be had without charge by writing South Bend Lathe Works, South Bend, Ind.



'File Filosophy' Gives Data on Use of Files

"File Filosophy," a recent publication of Nicholson File Co., consists of 48 pages of information on the history, manufacture, and use of hand files. The book is profusely illustrated.

Copies may be had without charge by writing Dept. SS, Nicholson File Co., Providence, R. I., or to SCHOOL SHOP.



New Turret Lathe Operation Film Produced

Illustrated is a studio scene during production of Gisholt Machine Company's new sound-and-color motion picture, "Turret Lathes—Their Operation and Use."

Subject matter covered includes a comparison of the turret lathe with other metalworking machines and detailed sequences illustrating basic types of work done on a turret lathe. The film is of 16 mm. size, and is available without cost to trade schools. Further information may be had from Dept. SS, Gisholt Machine Co., Madison, Wisc.

Dumore
SHOP TALK
EXTRA
EXTRA
PUBLISHED BY THE DUMORE CO. RACINE, WIS.—ISSUE NUMBER 1, 1943
PRECISION GRINDING VITAL IN AIRLINE MAINTENANCE
TOUGH GRINDING JOB EASY FOR BIG NO. 12
MOTORS IN 725 M.P.H. TEST

Dumore Company Publishes New Paper

Of interest to machine shop teachers is a new newsletter published by the Dumore Co., maker of electric grinders. Called "Dumore Shop Talk," the paper contains illustrated articles on the use of hand and toolpost grinders throughout industry. New adaptations of these machines are presented to assist grinder users to get the most from their machines.

Teachers interested in receiving the paper should address Dept. SS, The Dumore Co., Racine, Wisc., or SCHOOL SHOP.

Enlarged Glue Laboratory . . .

The newly-enlarged glue laboratory recently put into operation by Franklin Glue Co., Columbus, Ohio, maker of liquid hide glue. The laboratory is engaged in experimentation on the solution of gluing problems. Most modern equipment available is used in the laboratory, which is under the direction of Robert F. Snider.

Strictly Personal...

ABOUT YOUR FELLOW TEACHERS

FRANK A. VAN EYNDE, formerly District Supervisor of Trade and Industrial Education in Tennessee, Knoxville, has accepted the post of Special representative of Vocational Education, U. S. Office of Education, Washington. . . . TODD E. ZIEGLER, formerly local supervisor of War Production Training, Jackson, Tenn., has taken over Mr. Van Eynde's duties. . . . The death is announced of HARRY A. DALE, teacher of industrial arts at Rockville Centre, N.Y. . . . Lt. SIDNEY C. CARPENTER has succeeded Lt. Col. VERNE C. FRYKLUND as Director of the Teacher Training Department, Armored Force School, Fort Knox, Ky. : . . E. F. KOHNMAND has succeeded E. F. DANIELS as State Supervisor of Trade and Industrial Education, Jefferson City, Mo. . . . MAURICE E. TRUSAL, formerly director of visual education at Williamsport, Pa., Technical Institute, is now an ensign in the Navy and stationed at Fort Schuyler, N.Y. . . . FRED W. RATHJER has been appointed teacher in the newly-organized general shop at Far Rockaway, N.Y., high school. . . . DONALD L. MASON has taken a position with the Department of Mechanical Engineering, Stanford University. He formerly was in the Industrial Arts Department, Oregon State College, Corvallis. . . . ALFRED S. WHITE now teaches industrial arts at Tempe, Ariz., high school. . . . VERNE W. BARNES is teaching at Collinsville, Ill., high school, replacing JOHN M. NORTON. . . . Brig. Gen. FRANK J. MCSHERRY, formerly Director of Operations, War Man-power Commission, has been called to active Army service. . . . JOSEPH H. DALEY has been appointed director of Norwich, Conn., Trade School. . . . HAROLD TIETZ and ALAN FIERS, both junior high-school instructors in shop in Minneapolis, have joined the armed services, Tietz going to the Navy and Fiers to the Technical School Squadron of the Army Air Corps. . . . WILBUR STONER, formerly at Dunkirk, Ind., now teaches industrial arts at New Castle, Ind. . . . Birmingham, Mich., has a new automechanics shop this year, in which MAYNARD C. MOTT is the instructor. . . . LAURENCE SCHELAS is teaching metal and general shop at Hastings, Mich., junior high school. He was formerly at Scottville, Mich. . . . CHARLES EPPERSON, who taught industrial arts at Ft. Branch, Ind., has replaced NORMAN LLEWELLYN at Washington School Evansville, Ind.

from Washington . . .

(Continued from page 32)

("certificate of availability").

If you live in an area where employment stabilization plans have not existed before: In these communities, public education has for the first time been declared an essential activity under the April 18 order. Your job changes, therefore, have to have the approval of the U. S. Employment Service or local manpower officials. With their approval, you may shift to a better-paying job in another school system if your present employer is willing to release you and to grant a "certificate of availability."

After your contract expires and you have not been actively employed for more than 30 days, you may (without restriction) take a higher-paying job in another school system or in private essential employment. If your school board will not give you a "certificate of availability," see your nearest U. S. Employment Service office.

● Pleasant Summer-time. And when you get back to Fall teaching, don't be surprised if we have a new U. S. Commissioner of Education. John W. Studebaker, the present Commissioner, is likely by then to be heading-up the school systems of New Jersey!

Make "FANCY" Finish a part of Every Project

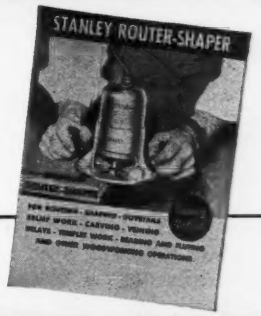
• • •

STANLEY No. 10 ROUTER-SHAPER

3/8 H.P. 18,000 R.P.M.

Let your boys put a professional finish on their work with a Stanley No. 10 Router-Shaper and you'll see a 100% response in added interest. Plenty of variety . . . use it for inlaying, veining, carving, dovetailing, rabbetting, and many shaping cuts. Its high speed motor, 18,000 R.P.M., permits smooth, clean cutting, both with and against the grain.

Catalog No. 605 gives the complete story. Be sure to have a copy for reference. Stanley Electric Tool Division, The Stanley Works, 112 Elm St., New Britain, Conn.



1843 STANLEY 1943 STANLEY *Electric* TOOLS

Everyone Can Use this Handy OHMITE Ohm's Law Calculator

Solves any Ohm's Law Problem with one setting of the slide...

EXTREMELY helpful in the training program today. Helps your students figure ohms, watts, volts, amperes—quickly, easily. No slide rule knowledge necessary. All values are direct reading. Two sides cover the range commonly used in electrical and radio work. Size 4⅛" x 9". Yours for only **10c**

TEACHERS

Write for information on how you can obtain a quantity of these calculators for your students at a special price.

OHMITE MFG. CO. 4836 Flourney St., Chicago

Be Right with OHMITE
RHEOSTATS · RESISTORS · TAP SWITCHES

CALLING ALL *Teachers!*

The Post Office Department will *not* forward SCHOOL SHOP if you move to a new address. The *only way* to continue to receive SCHOOL SHOP if you transfer to a new school or school system is to *let us know immediately.* Be sure to state your *school address* and the *subject you teach.* Address:

Circulation Dept., SCHOOL SHOP

postoffice box 100, Ann Arbor, Michigan

CERAMIC ATELIER
A POTTERY WORKSHOP

Instructions in ceramics
Clays, glazes, kilns, etc.
All pottery supplies
Write for booklet

EUGENE DEUTSCH, 923 NO. LA SALLE, CHICAGO

Seeking a Position?

There are many opportunities for advancement this year. For nearly twenty years we have been filling educational positions throughout the East and South, specializing in Industrial Arts and Vocational subjects. Write, telling us about yourself.

The Baltimore Teachers Agency
Member National Association of Teachers' Agencies
WILLIAM K. YOCUM, MANAGER
516 N. Charles St. Baltimore, Md.

LEATHERCRAFT
For 25 years, the headquarters for quality Leathercraft materials.
OSBORN BROS.
223 W. Jackson, Chicago
A special WAR CATALOG (No. 14) 64 pages of leathers and tools now in stock, with patterns and instructions for worthwhile projects now ready for instructors.

instructional resources

Inquiries concerning materials described in these columns may be addressed to SCHOOL SHOP, Box 100, Ann Arbor, Mich., and will be passed on to the proper firm or person.

Instructor's Guide for Machine Shop Training Units. Chicago: American Technical Society, 1942. Pp. 39. $0.75.

This instructor's guide furnishes helpful information and suggestions for any of the units of the Dunwoody series on machine shop training—lathe, drill press, milling machine, grinder, shaper and planer, and bench work.

Strength of Materials. Merriman, Hankin. New York: John Wiley & Sons, Inc., 1942. Pp. viii + 148. $1.50.

This, the eighth revised edition of Merriman's *Strength of Materials,* has been revised as a basic text for the nontechnical student and mechanic. Emphasis is on application of principles. Chapters on forces acting on solid bodies, principles of beams and their applications, elastic deformations, etc. Appendixes on properties of industrial materials, tables, and answers to the problems which form a part of each chapter. Drawings, index.

Edward K. Hankin is coordinator at Murrell Dobbins Vocational School, Philadelphia, Pa.

Applied Leathercraft. Groneman. Peoria: The Manual Arts Press, 1942. Pp. 210. $2.50.

In addition to basic instruction on leathercraft work, the book contains chapters on related information such as history, production of leather, and how to buy leather. Body of the book consists of well-designed projects, illustrated with drawings and photos. List of reference books; section of designs; index.

Chris H. Groneman teaches industrial education at Texas A. & M. College.

Tool Design. Donaldson, LeCain. New York: Harper & Brothers, 1943, Pp. viii + 443. $3.75.

Covers all phases of tool design: springs, welding, cutting tools, punches and dies, gages, jigs and fixtures, cams, screw machines, and turret lathes. Material also on drafting practice, manufacturing processes, properties of materials, and tolerances and allowances. Illustrated; questions and references with each chapter; index.

Cyril Donaldson and George H. LeCain are members of the faculty of Rochester, N.Y., Athenaeum and Mechanics Institute.

MoToR's Truck Repair Manual. New York: MoToR, 1943. Pp. 905. $8.00.

A complete manual of truck repair, according to make of truck. Each type of motor, carburetor, clutch, transmission, etc., for each truck is described and repair information provided. Specification data and clearances are given for pistons, connecting rods, etc. Section on truck conservation.

Plastics Problems and Processes. Mansperger and Pepper. Scranton: International Textbook Co., 1942 (second ed.). Pp. xxii + 350. $3.00.

Introductory chapters deal with history, chemistry, and commercial production and application of plastics. Subsequent chapters on tools, equipment, and supplies; forming and shaping; finishing and assembling; design; and hand and machine work problems. Projects stress simplicity of construction and design and utility. Photos; drawings; tables; index; appendixes; glossary; and bibliography.

Dale E. Mansperger is director of the arts and industries laboratory, Euclid, Ohio, Central High School. Carson W. Pepper is director of industrial arts, Shaw Technical High School, East Cleveland, Ohio. William H. Varnum, who edited the text, is professor and chairman of the department of arts education, University of Wisconsin, Madison.

Essential Mathematics for Skilled Workers. Keal and Leonard. New York: John Wiley & Sons, Inc., 1942. Pp. vii + 293. $1.50.

This text aims to present the worker-in-training with a maximum of practice and a minimum of theory. Chapters on arithmetic review, equations, evaluation, positive and negative numbers, ratio and proportion, square root, graphs, geometry, logarithms, etc. Appendix contains tables and charts on relations between trigonometric functions; formulas; decimal equivalents; and answers to problems and exercises included in each chapter. Drawings; index.

Harry M. Keal is head of the mathematics department, Cass Technical High School, Detroit, Mich. Clarence J. Leonard is head of the mathematics department, Southeastern High School, Detroit.

PIT Looks to Vocational Education

(Continued from page 4)

regulation may be secured from regional WPB offices or from the Governmental Division, War Production Board, Washington, D.C.

Pre-induction training is not an exclusive function of the vocational schools and departments, of course. It is part of an inclusive program reaching every division of the schools. To be most effective the work of the vocational departments should be closely correlated with the rest of the program through participation in Victory Corps activities and by other means.

Once again the war effort involves the active participation of the schools. The outstanding performance they have already given indicates that they can be relied on again to produce to the utmost of their ability.

FOR YOUR

Pre-Induction Course in

Fundamentals of Shopwork—

Jones and Axelrod's

Introductory Shopwork

Especially designed for the Pre-Induction Course in Fundamentals of Shopwork recommended by the War Department and the U. S. Office of Education, this book fully covers the topics suggested. Includes use and care of tools, measuring and gaging, woodworking and metalworking, wiring, wire-splicing, and ropework, splices, and knots. Carefully explains every step of shopwork, from correct ways of handling and using tools, to efficient methods of doing jobs. Illustrations show how to carry out jobs in the most efficient way.

List price: $2.00

Send for a copy on approval.

McGraw-Hill Book Company, Inc.

330 West 42nd Street, New York

Leaders for wartime courses

Aeronautics

SCIENCE OF PRE-FLIGHT AERONAUTICS

ELEMENTS OF PRE-FLIGHT AERONAUTICS

Prepared by experts; scientifically accurate; successfully at work today preparing thousands of young Americans for the air. $1.32; $.96.

Pre-Induction

THE FUNDAMENTALS OF ELECTRICITY

THE FUNDAMENTALS OF SHOPWORK

By **Johnson and Newkirk.** Two pre-induction texts that follow with absolute conformity the Army specifications in skilled training. Each $1.32.

Prices quoted are list, subject to usual school discount

New York · Boston · Chicago · *The Macmillan Company* · Dallas · Atlanta · San Francisco

NEW TECHNICAL BOOKS

Metalwork Technology and Practice
Ludwig $4.00. A modern manual for machinists.

Engine Lathe Operations
Whipple and Baudek. $1.60. Instruction manual for beginners.

Gas and Ac Arc Welding and Cutting
Jennings. 72c. A good text for beginners.

Principles of Electricity
Cornetet & Fox. $1.60. For pre-induction courses.

Spur Gearing
Owen. 72c. A brief course on common gears.

Write for approval copies

McKNIGHT & McKNIGHT

Publishers—Bloomington, Illinois

UNDER 4 FLAGS

RIDER BOOKS *are training Radio men*

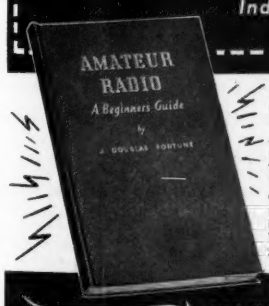
In addition to use as texts in all the armed services, Rider Radio Books are also found in leading libraries and famous technical schools; to mention a few: Georgia Tech., Univ. of Pennsylvania, Northwestern Univ., Virginia Polytech., Manhattan College, M I T, Univ. of Delaware, Carnegie, Duke, Harvard, Syracuse and Univ. of Alabama.

THE CATHODE RAY TUBE AT WORK
Accepted authority on subject ..... 338 pp.—$3.00
FREQUENCY MODULATION
Gives principles of FM radio ..... 138 pp.—$1.50
SERVICING BY SIGNAL TRACING
Basic method of radio maintenance. English ed. 360 pp.—$3.00; Spanish ed. 385 pp.—$3.50
THE METER AT WORK
An elementary text on meters ..... 152 pp.—$1.50
THE OSCILLATOR AT WORK
How to use, test and repair ..... 243 pp.—$2.00
VACUUM TUBE VOLTMETERS
Theoretical and practical ..... 179 pp.—$2.00
AUTOMATIC FREQUENCY CONTROL SYSTEMS
—also automatic tuning systems ..... 143 pp.—$1.25
AN-HOUR-A-DAY-WITH-RIDER SERIES
Provide foundation for advanced study on "Alternating Currents in Radio Receivers," on "Resonance & Alignment," on "Automatic Volume Control," on "D-C Voltage Distribution." Hard bindings ..... 90c each
A-C CALCULATION CHARTS
Faster than a slide rule ..... 160 pp.—$7.50

JOHN F. RIDER, Publisher, Inc.
404 FOURTH AVENUE · NEW YORK CITY
EXPORT DIV.: ROCKE-INTERNATIONAL ELEC. CORP. 100 VARICK STREET, NEW YORK CITY. CABLE: ARLAB

YOU NEED THIS GREAT BOOK!

Indispensable for all Teachers and Students of Radio



Recognized and endorsed by radio experts, teachers, and all interested in radio, as one of the most practical, helpful, and authentic radio text books yet written.

J. Douglas Fortune's book is authoritative, readable, understandable! It covers everything from learning the code, on through receiver theory, the actual building of transmitters, modulator . . . etc. etc. right on to complete reference chapter explaining in detail most minute operations. A really indispensable book for pre-induction training! Beautifully bound in cloth — over 150 pages — post-paid for only 75c . . . or at bookstores. Special prices on quantity purchases by teachers.

THORDARSON ELECTRIC MFG. CO.
502 WEST HURON STREET • CHICAGO, ILL.

A Shop Program *(from page 6)*

and paint.

XX. Clean brush thoroughly and explain care of brushes.

XXI. You will be assigned a small project to make as a test.

You may now make any woodwork project you wish that is approved by the instructor or take up your choice of another medium.

Woodworking References:

Principles of Woodworking, Hjorth.
Instructional Units in Hand Woodwork, Brown and Tustison.
Farm Woodwork, Roehl.
Wood Finishing and Painting Made Easy, Waring.
Furnishing the Home Grounds, Shepardson.
Elements in Woodwork, King.
Problems in Farm Woodwork, Blackburn.
A Manual for Hand Woodworking, Hunt.
Disston Tool Manual, Henry Disston and Sons, Inc.
General Shop Woodworking, Fryklund and La Berge.
Home Mechanics for Girls, Woodin.
Study Guides in Woodwork, Waddell.
Instruction and Information Units for Hand Woodworking, Douglas and Roberts.
Fitting Farm Tools, Roehl.
Shapleigh Hardware Catalog.
Sears Roebuck Catalog.
Montgomery Ward Catalog.

Wood Turning Requirements

I. Explain and demonstrate thoroughly the use and care of the lathe. Give the names and purposes of the parts of the lathe.

II. Know the names and uses of all lathe tools and demonstrate ability to sharpen.

III. Explain thoroughly spindle turning, including clamping wood in the lathe, adjusting tool rest, position of operator, how to hold tools. Demonstrate by making roughing cut, sizing cut and smoothing cut. Demonstrate use of parting tool. Make a series of "V" cuts to required size.

IV. Explain thoroughly face plate turning. Demonstrate.

V. Explain thoroughly chuck turning. Demonstrate.

VI. Make a chisel handle to specifications.

VII. Make a napkin ring to specifications.

VIII. Make a rolling pin with free handles, a nut bowl, or a gavel to specifications. You may now make any woodturning project you wish that is approved by the instructor or take up your choice of another medium.

Wood Turning References:

Course in Wood Turning, Milton and Wohlers.
Principles of Woodworking, Hjorth.
Machine Shop Practice, Jones.
Instructional Units in Hand Woodworking, Brown and Tustison.
Instruction and Information Units for Hand Woodworking, Douglas and Roberts.

Leathercraft Requirements

I. Give an oral discussion on different kinds of leathers, their uses, how tanned or how prepared. Tell what cuts are preferred for different purposes.

II. Explain and demonstrate the uses of the cutting board, small square, sharp pointed knife, fast cutting whetstone, leather strop, straight edge, edge creaser, modelers, tracer, deerfoot, spadepoint, stipple or background tool, stamping tools, stamping anvil, and mallet.

III. Draw or find and trace several good designs to go on bookmarks, car-key cases, triangular coin purses, rectangular coin purses, wristband coin purses, comb cases, notebook covers, belts, book covers, and billfolds. Work out a good monogram of your initials.

IV. Construct a small article of leather such as a book mark, car-key case, comb case, wristband coin case, etc. This article must have a simple design or monogram embossed or carved.

V. Construct a larger article of leather such as a billfold, memorandum pad cover, belt, book cover, or leather notebook. One of these articles must have laced edges. It must have a design that will try the skill of the student. It may be either embossed or carved.

After completing the last requirement you may continue with a choice of leather projects or change to another medium.

Leathercraft References:

Applied Leathercraft, Groneman.
Fundamentals of Leathercraft, Cramlet.
Handicraft, Griswold.
General Leathercraft, Cherry.

Bookbinding Requirements

I. Explain the usual method of binding any average books, magazines, music books, newspapers, single fold pamphlets, and Bibles.

II. Explain and demonstrate the use of the following tools: shears, scratch awl, rule, bone folder, cobblers hammer, hacksaw, No. 1/0 harness needle, cutting knife, steel straight edge, hard pencil, skiving knife, dividers, pliers, oyster knife, backing hammer, sewing frame, punching guide, finishers clamp, V-trough, bevel chisel, pounding iron, combination backer and press.

III. Explain kinds of glue, how and where to use, and tell what kind of glue brush is best. Tell what binding mate-

Record of Achievement

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Woodwork																					
Woodturning									X	X	X	X	X	X	X	X	X	X	X	X	X
Bookbinding									X	X	X	X	X	X	X	X	X	X	X	X	X
Electricity																				X	X
Art Metal						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ornamental Metal					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sheet Metal						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Plumbing							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Auto Mechanics												X	X	X	X	X	X	X	X	X	X
Cement				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Farm Mechanics						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Leathercraft						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Beadcraft					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Plastic Craft						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reed, Weaving and Fibre Craft									X	X	X	X	X	X	X	X	X	X	X	X	X
Block Printing									X	X	X	X	X	X	X	X	X	X	X	X	X
First Aid																X	X	X	X	X	X
Drafting																					X
Home Mechanics																				X	X

rials are available for covers and preferences for each type of book.

IV. Make a single section book explaining process thoroughly. May be made from advertising pages or scrap material.

V. Make a loose-leaf binder for a scrapbook, notebook, photograph album, etc., and explain procedure.

VI. Make a bridge pad cover and explain.

VII. Explain and demonstrate applying double end sheets without sewing, sewing on end sheets, flat stitching, machine stitching, overcast, nailing, loom sewing, and saddle stitching.

VIII. Bind at least three books for the school library or any public library or public book lending concern.

After completing the last requirement you may continue binding books or change to another medium.

Bookbinding References:

The Binding of Books, Perry and Baab.

Sheetmetal Requirements

I. Make for the shop a mallet, edge folder, forming block, flaring block, design punch, or cutting and tinning block as assigned.

II. Explain and demonstrate how to use tin snips, how to punch and drill holes in thin metal, how to form by hand, how to lay out simple rectangular, cylindrical, and conical forms, how to prepare soldering flux, how to prepare and use the soldering copper, how to solder galvanized iron.

III. Construct from sheetmetal a pancake turner.

IV. Construct from sheetmetal a funnel.

V. Construct from sheetmetal a scout camp torch, waste paper basket, small tool tray, or similar article.

You may now continue with sheetmetal or change to another medium.

Sheet Metal References:

General Shop Metal Work, Dragoo and Dragoo.

Handicraft, Griswold.

55 New Tin Can Projects, Lukowitz.

Art Metal Requirements

In art metal, the finer metals such as copper, brass, nickel silver, pewter, silver, gold, etc., are usually used.

I. Make for the shop a mallet, edge folder, forming block, flaring block, design punch, or cutting and tinning block as assigned.

II. Explain and demonstrate the preparation and use of a soldering iron.

III. Explain how to anneal copper or brass.

IV. Make a paper pattern for each piece of a roll blotter holder, paper knife, bud vase, napkin ring, and a two-candle candelabra.

V. Make one of these or a smiliar article from one of the metals shown above or from a bright tin can.

You may now continue with projects of your own choice in art metal or change to another medium.

Art Metal References:

Handicraft, Griswold.

General Shop Metal Work, Dragoo and Dragoo.

55 New Tin Can Projects, Lukowitz.

High PREFERENCE RATINGS GIVEN TO SHOP TEACHERS

AN UNUSUALLY high preference rating has been granted shop teachers for the purchase of materials for maintenance, repair, and operating supplies, under the new WPB regulation CMP-5A. The rating assigned under this order, AA-2X, is among the highest available for any purpose, and should materially lessen the shop teacher's difficulty in getting necessary operating materials.

Specifically, the new AA-2X rating will accomplish three things:

1. It will eliminate delays attendant to obtaining ratings on form PD-1A, which will now be used only for capital equipment purchases in excess of those allowed in the new regulation, and for other special cases. The new AA-2X rating can be applied, as described below, without specific approval of each purchase by the WPB.

2. The new rating will assure almost immediate delivery of maintenance and repair materials formerly available to shop teachers under regulation P-100, on an A-10 rating which was inadequate in getting most shop materials. The P-100 order was revoked April 1.

3. The new CMP-5A order will allow, within certain limits, the purchase of equipment and supplies for pre-induction training, which has heretofore been hampered in getting equipment, especially for radio and electrical training.

Limitations on purchases under the new order permit the purchase of the same amount of supplies as used in 1942. Schools or departments needing added quantities, or not in operation in 1942, may apply on form PD-1A, as in the past, or on Form PD-408, or present their problems to the WPB.

Application of the rating is simple: Purchase orders must contain the following statement, manually signed by your school purchasing agent:

"Preference Rating AA-2X: MRO 5A. The undersigned certifies, subject to the criminal penalties for misrepresentation contained in section 35(A) of the United States Criminal Code, that the items covered by this order are required for essential maintenance, repair, or operating supplies; that this order is rated and placed in compliance with CMP Regulation No. 5A and that the delivery requested will not result in a violation of the quantity restrictions contained in paragraph (f) of said regulation."

The regulation also requires the purchaser to keep accurate records of his purchases under this order and of similar purchases during 1942, on which this year's quota is based. This is for the convenience of WPB representatives in checking over the school's purchasing records, if they so desire.

Where more supplies or equipment are wanted than allowed on the CMP-5A order, WPB authorities suggest the use of form PD-408, particularly in schools where it is possible to compute requirements on a quarterly basis.

On this form the school must list its *estimated* requirements for the coming quarter compared with those for the last quarter of 1942. Specific ratings are then awarded by the WPB for each class of items listed, these ratings to be passed along to the supplier at the time of purchase.

Through use of the PD-408 form, it is possible to request more supplies than used in 1942, as well as capital equipment in excess of $100 per unit, the limit under CMP-5A. Ratings given depend on the urgency or need for the materials *as explained by the school applying.*

Copies of both CMP-5A and PD-408 may be had from your nearest WPB regional or field office. Help, if needed, in interpreting or applying either may be had from your state director of vocational education or from the WPB offices.

Index to Volume 2

All articles and projects in Volume 2 of SCHOOL SHOP may be found in this index, listed alphabetically by both author and subject (e.g., woodworking, machine shop). Following name of author and title of article are month and page where the article may be found.

A

Akeson, H. O. Combination Stool & Stepladder. Nov., 12.

AMERICAN VOCATIONAL ASSOCIATION—
- AVA Holds War Work Conference at Toledo. Dec., 21.
- War Problems Discussed at AVA Toledo Convention. D. M. Cresswell. Jan., 4.

AUTOMOTIVE MECHANICS—
- An Automechanics Shop for Less Than $100. G. H. Billingham. Apr., 6.

AVIATION—
(see also Model Building)
- Aircraft Instruments and the Industrial Arts Shop. Joseph H. Quimby. Dec., 14.
- Airplane Control Demonstrator. A. Joseph. Dec., 4.
- Austin Takes to the Air. Guy O. Tollerud. May, 8.
- Aviation Education in School Shops. Merrill Hamburg. Dec., 12.
- Aviation Mechanics Fly to Far Fields. June, 17.
- Can Your Shop Students Qualify as Pilots? Emerson Neuthardt. Mar., 3.
- Instructional Resources for Preflight & Aviation Training. May, 12.
- New Frontiers. Gill Robb Wilson. Sept., 3.
- Pennsylvania State School of Aeronautics. Robert P. Stoner. Dec., 6.

B

Badger, A. J. Stimulate Interest in Orthographic Projection. Oct., 10.

Baughman, Ralph. Projects from Rails. Mar., 9.

Bedell, Earl L. Training Teachers Through Employment. Apr., 22.

Billingham, G. H. An Automechanics Shop for Less Than $100. Apr., 6.

BLUEPRINT READING—(see Drafting)

Boekeloo, Howard W. Patriotic Problem In Drafting. May, 18.

Booth, Claude L. Ball-Peen Kit. Sept., 6.

Brodinsky, Ben. "Clouds" of Model Planes. Dec., 10.

C

Christy, Glen B. Adjustable Wrench. Nov., 11. Die Holder. Jan., 12. Tap Wrench. Feb., 20.

Colletti, J. J. An 18th Century Break-front. Nov., 6.

CRAFTS—
- Linoleum Block Knives from Pen Points. F. N. Newton, Jr. Mar., 14.
- Rattler Wristlets. Stan Schirmacher. Oct., 20.

Cresswell, D. M. War Problems Discussed at AVA Toledo Convention. Jan., 4.

D

DeForest, Richard. First-Aid Stretchers. Sept., 17.

Directory of State and National Associations. June, 23.

Duck, Vernon E. A Shop Program for the Small School. June, 6.

DRAFTING—
- Aircraft Drafting at Edison High School. H. B. Young. Dec., 5.
- Blueprint Reading vs. Drawing in Vocational Schools. Benjamin J. Stern. Sept., 8.
- Detailing a High-Pressure Steam Engine Piston. August Flam. Apr., 4.
- Patriotic Problem in Drafting. Howard W. Boekeloo. May, 18.
- Stimulate Interest in Orthographic Projection. A. J. Badger. Oct., 10.
- Teaching Aid for Blueprint Reading. Andrew J. Miller. Nov., 5.
- A Test with Teaching Value. M. F. Foss. Feb., 8.

Dragoo, K. L. Building a New Vocation: Technical Radio. Nov., 22.

E

ELECTRICITY—
- Demonstrating Alternating Currents. Ralph O. Williams. Apr., 10.
- Electric Soldering Copper. Boyd M. Haag. Oct., 16.
- Nerve Tester. Byron M. Taylor. May, 10.
- Simplified Small-Wire Soldering. Mar., 8.
- "Water Analogy" Method of Teaching Capacitance and Inductance Effects. Frederick C. Kulieke, Sr. Mar., 10.

F

Federal and State Officials of Industrial Arts and Vocational Education. June, 20.

Fenn, I. M. Adjustable Jig for Cutting Dowels. Nov., 13.

Flam, August. Detailing a High-Pressure Steam Engine Piston. Apr., 4.

FORGE—
- Forged Coat Hook. Harold L. Forsea. Apr., 23.
- Forged Tack Hammer. N. H. Poole. Jan., 12.

Forsea, Harold L. Forged Coat Hook. Apr., 22.

Foss, M. F. A Test with Teaching Value. Feb., 8.

G

GLIDER BUILDING—
- Austin Takes to the Air. Guy O. Tollerud. May, 8.

Gluckman, Mark L. Noise in the School Shop. Apr., 3.

Grigsby, Rall I. A General Education Program Serving Youth's Vocational Needs. Oct., 3.

Groneman, Chris H. Visualizing the Industrial Arts. Sept., 22.

H

Haag, Boyd M. Electric Soldering Copper. Oct., 16.

Hamburg, Merrill. Aviation Education in School Shops. Dec., 12.

HANDICRAFTS—(see Crafts)

Hawkins, Layton S. Schools Train Four Million War Workers. May, 3.

Hellum, Amanda. Pine Duck Book-Ends. Sept., 18.

Hiller, P. Russell. Small Gas Furnace. Feb., 5.

Huss, William E. Tap and Die Tool Board. Jan., 10.

I

INDUSTRIAL EDUCATION—
- A Shop Program for the Small School. Vernon E. Duck. June, 6.
- Industrial Education in the Post-War Era. Arthur B. Mays. Jan., 3.

Instructional Resources, Sept., 11, Oct., 15; Nov., 20; Dec., 16; Jan., 20; Feb., 16; Mar., 16; Apr., 20; May, 12; June, 26.

In the Morning Mail. Oct., 22; Nov., 14; Dec., 20; Jan., 18; Feb., 14; Apr., 18; May, 20.

Isaacson, Harold, and L. Robert Mackey. Commando Course. Mar., 6.

J

Joseph, A. Airplane Control Demonstrator. Dec., 4.

K

Karch, R. Randolph. School Print Shop Aids the War Effort. Nov., 16.

Kulieke, Frederick C., Sr. "Water Analogy" Method of Teaching Capacitance and Inductance Effects. Mar., 10.

L

Lackey, Paul G. Johnny Get Your Gun. Feb., 21.

Longley, E. LeRoy. Console Set. May, 16.

M

MACHINE SHOP—
- Adjustable Wrench. Glen Christy. Nov., 11.
- Ball-Peen Kit. Claude L. Booth. Sept., 6.
- Brazing Band-Saw Blades. Milton Schrag. Nov., 13.
- Die Holder. Glen B. Christy. Jan., 12.
- Hand Knurling Tool. Wallace I. Victoria. Apr., 7.
- Projects from Rails. Ralph W. Baughman. Mar., 9.
- Photo Enlarger. H. C. Rose. Oct., 5.
- Tap Wrench. Glen B. Christy. Feb., 20.

Mackey, L. Robert, and Harold Isaacson. Commando Course. Mar., 6.

Mays, Arthur B. Industrial Education in the Post-War Era. Jan., 3.

MECHANICAL DRAWING—(see Drafting)

Merdutt, George. Model Planes on the Production Line. Dec., 8.

METALWORKING—
- Checkerboard Cake Mold. Charles M. Rice. Apr., 7.
- Console Set. E. LeRoy Longley. May, 16.
- Ice Creepers. N. H. Poole. Feb., 22.
- Sheetmetal Dust Pan. Otto A. Steinike. Sept., 14.
- Shoe Scrapers from Old Bed Rails. Einar E. Siro. May, 6.
- Small Gas Furnace. P. Russell Hiller. Feb., 5.

Miller, Andrew J. Teaching Aid for Blueprint Reading. Nov., 5.

MODEL BUILDING—
- Balancing Device for Scale-Model Airplanes. Alfred H. Ward. Jan., 23.
- "Clouds" of Model Planes. Ben Brodinsky. Dec., 10.
- Model Airplane Fuselage Duplicator. Robert L. Stephens. Dec., 22.
- Model Building as an Industrial Arts Activity. G. O. Wilber. Dec., 2.
- Model Planes on the Production Line. George Merdutt. Dec., 8.
- The Print Shop Helps Build Model Airplanes. David M. Teichler. Mar., 14.

Moore, Andrew A., and John P. Wantuck. PIT Woodworking Project. Apr., 8.

N

Neuthardt, Emerson. Can Your Shop Students Qualify as Pilots? Mar., 3.

News. Sept., 20; Nov., 19; Dec., 19; Jan., 17; Mar., 20; Apr., 19; May, 19; June, 16.
News from Industry. Sept., 20; Oct., 14; Nov., 18; Dec., 11; Jan., 18; Feb., 23; Mar., 23; Apr., 16; May, 20; June, 24.
Newton, F. N., Jr. Linoleum Block Knives from Pen Points. Mar., 14.

P

Pantano, John N. Easy-to-Get Materials. May, 7.
Parkes, George H. Is Your War Training Geared to Industry's Needs? Jan., 8. Vocational Schools and War Production. Sept., 12.
Phillips, Earl O. Tool-Checking Sheet. Sept., 10.
Poole, N. H. Forged Tack Hammer. Jan., 12. Ice Creepers. Feb., 22.
Prakken, Lawrence W. PIT Looks to Vocational Education. June, 3. Pre-Induction Training at Highland Park. Jan., 3. School Shops Called to the Colors. Nov., 3.

PREFLIGHT—(see Aviation)

PRE-INDUCTION TRAINING—
(see also course wanted)
Instructional Resources for Pre-Induction Courses. Mar., 16.
PIT Looks to Vocational Education. Lawrence W. Prakken. June, 3.
Pre-Induction Training at Highland Park. Lawrence W. Prakken. Feb., 3.
School Shops Called to the Colors. Lawrence W. Prakken. Nov., 3.

PRINTING—
The Print Shop Helps Build Model Airplanes. David M. Teichler. Mar., 14.
School Print Shop Aids the War Effort. R. Randolph Karch. Nov., 16.

PROJECT OF THE MONTH—
Airplane Control Demonstrator. A. Joseph. Dec., 4.
Ball-Peen Kit. Claude L. Booth. Sept., 6.
Commando Course. Harold Isaacson, L. Robert Mackey. Mar., 6.
An Eighteenth Century Breakfront. J. J. Colletti. Nov., 6.
Photo Enlarger. H. C. Rose. Oct., 5.
Shoe Scrapers from Old Bed Rails. Einar E. Siro. May, 6.
Small Gas Furnace. P. Russell Hiller. Feb., 5.
Tap and Die Toolboard. William E. Huss. Jan., 10.

Q

Quimby, Joseph H. Aircraft Instruments and the Industrial Arts Shop., Dec., 14.

R

RADIO—
(see also Electricity)
Building a New Vocation: Technical Radio. K. L. Dragoo. Nov., 22.
Demonstrating Alternating Currents. Ralph O. Williams. Apr., 10.
Organizing a Radio Course. John C. Sampson. Jan., 5.
"Water Analogy" Method of Teaching Capacitance and Inductance Effects. Frederick C. Kulieke, Sr. Mar., 10.
Rice, Charles M. Checkerboard Cake Mold. Apr., 7.
Rose, Homer C. Drying Rack for Negatives. May, 22. Photo Enlarger. Oct., 5.

S

Sampson, John C. Organizing a Radio Course. Jan., 5.
Schirmacher, Stan. Bowling Pin Projects. Jan., 14. Rattler Wristlets. Oct., 20.

SHEETMETAL WORK—(see Metalworking)
Sherwood, George C. Converting the American Housewife to War Worker. Feb., 10.

SHOP ADMINISTRATION—
Easy-to-Get Materials. John N. Pantano. May, 7.
Noise in the School Shop. Mark L. Gluckman. Apr., 3.
Tool-Checking Sheet. Earl O. Phillips. Sept., 10.
Shop Teachers' Service. Oct., 12; Feb., 12.

SHOP TRAINING FOR VICTORY—
Audio-Visual Aids for Wartime Training. Maurice E. Trusal. Nov., 8.
Converting the American Housewife to War Worker. George C. Sherwood. Feb., 10.
Is Your War Training Geared to Industry's Needs? George H. Parkes. Jan., 8.
Training Welders in Wyoming. John Walker. Oct., 8.
Vocational Schools & War Production. George H. Parkes. Sept., 12.
Siro, Einar E. Shoe Scrapers from Old Bed Rails. May, 6.
Smith, Ivan W. Basketball Towel Truck. Oct., 18.
Steinike, Otto A. Sheetmetal Dust Pan. Sept., 14.
Stephens, Robert L. Model Airplane Fuselage Duplicator. Dec., 22.
Stern, Benjamin J. Blueprint Reading vs. Drawing in Vocational Schools. Sept., 8.
Strictly Personal. Sept., 19; Nov., 19; Dec., 18; Jan., 17; Mar., 13; Apr., 23; May, 22; June, 25.
Suppliers Directory. June, 7.

T

Taylor, Byron M. Nerve Tester. May, 10.

TEACHER TRAINING—
Training Teachers Through Employment. Earl L. Bedell. Apr., 22.
Teichler, David M. The Print Shop Helps Build Model Airplanes. Mar., 14.
Tollerud, Guy O. Austin Takes to the Air. May, 8.
Tolman, J. E. Bridge Lamp. Jan., 16. Coffee Table. Sept., 16. Modern Occasional Table. Oct., 18.
Trusal, Maurice E. Audio-Visual Aids for Wartime Training. Nov., 8.

V

Victoria, Wallace I. Hand Knurling Tool. Apr., 7.

VISUAL AIDS—
Audio-Visual Aids for Wartime Training. Maurice E. Trusal. Nov., 8.
Visualizing the Industrial Arts. Chris H. Groneman. Sept., 22.

VOCATIONAL EDUCATION—
(see also Industrial Education)
A General Education Program Serving Youth's Vocational Needs. Rall I. Grigsby. Oct., 3.

W

Walker, John. Training Welders in Wyoming. Oct., 8.
Wantuck, John P., and Andrew A. Moore. PIT Woodworking Project. Apr., 8.
Ward, Alfred H. Balancing Device for Scale-Model Airplanes. Jan., 23.

WAR PRODUCTION TRAINING—
(see also Shop Training for Victory)
Schools Train Four Million War Workers. Layton S. Hawkins. May, 3.
Washington Letter. Sept., 24; Oct., 24; Nov., 24; Dec., 24; Jan., 24; Feb., 24; Mar., 24; Apr., 24; May, 24; June, 32.

WELDING—
Brazing Band-Saw Blades. Milton Schrag. Nov., 13.
Training Welders in Wyoming. John Walker. Oct., 8.
Westerberg, G. B. Lawn Chair. Feb., 18.

WHAT DO YOU THINK?
Can blueprint reading be taught as a subject in itself, or can it best be taught through learning to draw? Feb., 14.
How can the schools do a more effective job of training war workers for industry? Oct., 22.
How should text books be used in the scoool shop? Jan., 22.
What activities and course-of-study changes have you found most valuable in meeting the request of the War Department and U.S. Office of Education to increase aviation activities in school shops? Dec., 18.
What course that you took in your colloge training seems most valuable to you now in retrospect as a teacher? Apr., 18.
Wilber, G. O. Model Building as an Industrial Arts Activity. Dec., 2.
Williams, Ralph O. Demonstrating Alternating Currents. Apr., 10.
Wilson, Gill Robb. New Frontiers. Sept., 3.

WOODCARVING—
Pine Duck Book-Ends. Amanda Hellum. Sept., 18.

WOODWORKING—
Adjustable Jig for Cutting Dowels. I. M. Fenn. Nov., 13.
Basketball Towel Truck. Ivan W. Smith. Oct., 18.
Bowling Pin Projects. Stan Schirmacher. Jan., 14.
Bridge Lamp. J. E. Tolman. Jan., 16.
Coffee Table. J. E. Tolman. Sept., 16.
Combination Stool and Stepladder. H. O. Akeson. Nov., 12.
Drying Rack for Negatives. Homer C. Rose. May, 22.
An Eighteenth Century Breakfront. J. J. Colletti. Nov., 6.
First-Aid Stretchers. Richard DeForest. Sept., 17.
Johnny Get Your Gun. Paul G. Lackey. Feb., 21.
Lawn Chair. G. B. Westerberg. Feb., 18.
Modern Occasional Table. J. E. Tolman. Oct., 18.
Pine Duck Book-Ends. Amanda Hellum. Sept., 18.
PIT Woodworking Project. John P. Wantuck and Andrew A. Moore. Apr., 8.
Tap and Die Toolboard. William E. Huss. Jan., 10.

Y

Young, H. B. Aircraft Drafting at Edison High School. Dec., 5.

from WASHINGTON by WILLIAM PACA

WHEN President Roosevelt returned to Washington, hale and relaxed, after a tour of the country (April 30), he threw out a suggestion which set educators—especially vocational educators—thinking.

"Would it hurt any young person to make a contribution of one year to his country?" Mr. Roosevelt asked.

While reporters' pencils scribbled vigorously, the President added one or two details to this suggestion. First, he said he had in mind that each young person should undergo some form of training during that year of "contribution." Second, this training would be only "partly military." Third, he thought that such training should be applied in getting the most out of the huge factories and arsenals the country has built during the last 24 months.

Add one more fact, and the implications of the President's suggestion become clearer. He made this suggestion immediately after he had come back from an inspection of Army training camps, where it was impressed on him that nearly 9 men out of 10 in the fighting forces have to be specialists.

The conclusion, so far as some Washington vocational educators are concerned, is that a good part of the year which each youth would give to his country would be spent in the training shop.

"Does the President have in mind a huge, nation-wide compulsory NYA or CCC?" is a question that has already been asked by many.

Most authoritative answer your reporter can find to this question is that the year-of-service may include the best features of both of these youth-serving agencies. More likely, however, the year-of-training the President has in mind would be closer to a compulsory pre-induction training program. Youth would then train for more definite goals and occupations than was possible under the two New Deal agencies. They would train for Army and Navy life and jobs, or for "earmarked" industry jobs. Such training would be more meaningful than the old CCC or NYA had to offer.

● Gearing present-day pre-induction training closer to the realities of Army occupations is one of the tasks Pre-induction Training officials are now engaged in. They seek to do this by listing in great detail the specific jobs which Army specialists have to perform in the field or in the military shop. These lists of activities would represent a "road map" for the vocational teacher to follow in planning his training.

Bulletins listing the specific jobs that Army mechanics and specialists have to do in the areas of electricity, machines, radio, automotive mechanics, and others, will soon be ready for all *vocational* teachers and administrators. With these bulletins at hand, pre-induction shop teachers will know exactly what the soldier will be expected to do in these occupations. Teachers will then be able to devise training methods to meet precise Army needs.

● Your reporter has written considerably during the past school year about pre-induction training. But a 3,000-mile trip through many states has convinced him that some school shop teachers still find it difficult to see the ties between the school shop and the battlefield. One of those ties is pre-induction training. And pre-induction training can save lives.

Your reporter has heard from tough, gnarled Army men heart-rending stories of how American boys have died uselessly on the Tunisian and other fronts because some ill-trained soldier-mechanic failed to repair adequately a tank gas line or radio.

"Damn the mechanic who worked on this tank for me to die in!" These are the words of one boy to his surviving crew-buddies. He died because some soldier-mechanic failed to do his job right. It's true, of course, that training is the Army's responsibility. But the Army has only 90 days in which to produce a specialist. It has therefore called on the schools, which have the boys last before they enter the Army, to "pre-train" the future soldiers on essentials of courses vital to modern armies. The Army is delighted with the response of the schools so far. Some 350,000 boys are taking pre-induction courses. But about three-quarters of a million are not getting the preparation they should. Here is a challenge to shop teachers which they will have to answer before the Fall term of 1943!

● Have you been trying to keep up with War Manpower Commission orders?

Contrary to some opinion, these orders fall into a pattern designed to promote the war effort. They seek to stabilize employment, prevent wasteful shifting of workers and employees. Among the latest of these is the "freeze" order of April 18. And it affects teachers to a considerable degree as employees of "essential industries."

By the time this Letter is in print, the interpretation or the order itself may change. But as of going to press, here is how the employment "freeze" affects teachers:

If you live in an area controlled by a local stabilization plan (ask your employment service to tell you whether yours is one of these critical areas): You are likely to be held with your present employing board for the contract period or for the school year. You may, however, shift to better-paying positions within the school system. You cannot shift to better-paying positions outside your present system unless you get a release from manpower officials

(Continued on page 25)

Index to Advertisers

Allied Radio Corp. 13
American Technical Society 19
Armstrong Bros. Tool Co. 9
Baltimore Teachers Agency 26
Boice-Crane Co. 18
Brodhead-Garrett Co. 13
California Aero Glider Co. 18
Casein Co. of America 13
Ceramic Atelier 26
Comet Model Airplane & Supply Co. 21
Delta Mfg. Co. 5
Education Digest 21
Grand Specialties Co. 15
Paul K. Guillow 15
Hammond Machinery Builders 23
Lafayette Radio Corp. 16
R. K. LeBlond Mach. Tool Co. cover 4
Lewis Machine Tool Co. 21
Logan Engineering Co. cover 2
Lufkin Rule Co. 21
The Macmillan Co. 27
The Manual Arts Press 24
McGraw-Hill Book Co., Inc. 27
McKnight & McKnight 27
Meissner Mfg. Co. 19
Louis Melind Co. 21
Ohmite Mfg. Co. 26
O'Neil-Irwin Mfg. Co. 21
Osborn Bros. 26
John F. Rider Publisher, Inc. 27
Sheldon Machine Co. 15
E. H. Sheldon Co. 9
Skilsaw, Inc. 2
South Bend Lathe Works cover 3
Stanley Electric Tool Div. 25
Stanley Tools 9
Thordarson Mfg. Co. 27
Universal Scientific Co. 15
X-acto Crescent Products Co. 15

16" swing, South Bend Toolroom Lathe
13" swing, South Bend Engine Lathe
10" swing, South Bend Engine Lathe
9" swing, South Bend Engine Lathe
Series 1000, 10" swing, South Bend Turret Lathe
14½" swing, South Bend Toolroom Lathe

SOUTH BEND LATHES

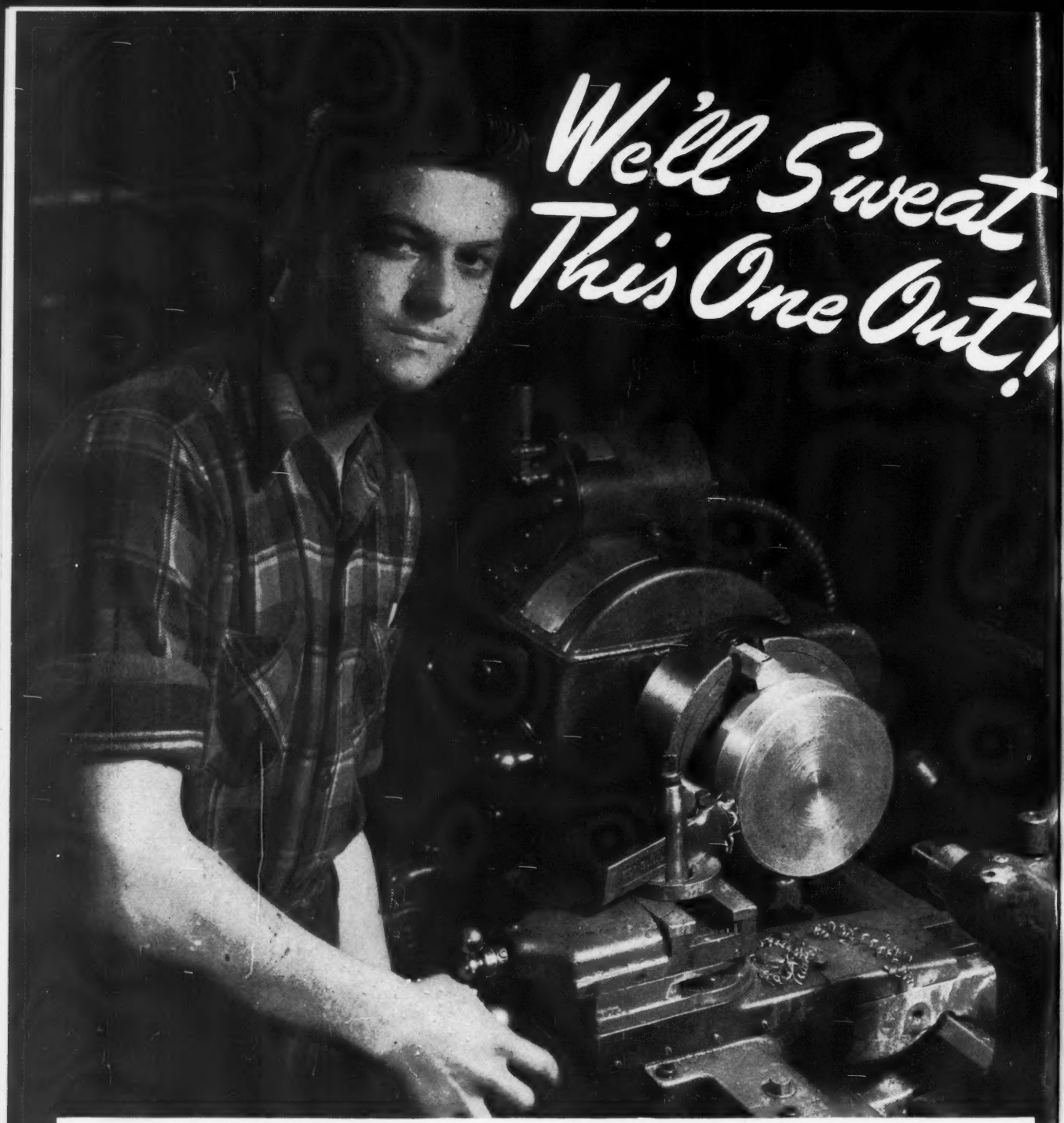
Engine Lathes · Toolroom Lathes · Turret Lathes

Save time and manpower for vital production work through practical shop training. The thousands of new lathe operators that war industries must have will produce better work sooner if they are trained on the right lathes—the kind industry uses. They can then step into their new jobs able to operate their machines properly and will require a minimum of supervision.

Because of the widespread use of South Bend Lathes in industry for both production and toolroom work, they are effective equipment for training purposes. In addition, their ease of operation, ruggedness and safety features contribute to their popularity in school shops.

South Bend Lathes are made in a range of sizes that will meet all school shop requirements. The Engine Lathes and Toolroom Lathes are available in 9″, 10″, 13″, 14½″, and 16″ swings. The Turret Lathes have 9″ and 10″ swings. A copy of Catalog 100-C describing these lathes will be sent upon request.

SOUTH BEND LATHE WORKS
South Bend, Indiana — Lathe Builders for 36 Years



It's June—time the boys should be working with one eye on the window and teachers making a connection to sell books or be camp counselors.

But this is June *1943*. This year, in thousands of vocational schools all over America, the only concession to summer will be the open windows.

But let's be honest. If the ingredients of this war are truly blood, sweat, and tears and we are called upon for only the sweat, nothing less than our best efforts can make us worthy of those who furnish the other two.

Full speed ahead. Humanity first, humidity second.

The R. K. LeBLOND MACHINE TOOL CO., CINCINNATI, OHIO
Largest Manufacturer of a Complete Line of Lathes

NEW YORK: 103 Lafayette St., Canal 6-5281

CHICAGO: 20 N. Wacker Dr., STA 5561

LeBLOND
CINCINNATI OHIO
U.S.A.